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Volume Title: Studies in Income and Wealth

Volume Author/Editor: Conference on Research in Income and Wealth.

Volume Publisher: UMI

Volume ISBN: 0-870-14165-1

Volume URL: <http://www.nber.org/books/unkn47-1>

Publication Date: 1947

Chapter Title: PART III: National Income Estimates of Latin American Countries

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Chapter URL: <http://www.nber.org/chapters/c5686>

Chapter pages in book: (p. 160 - 244)

NATIONAL INCOME ESTIMATES OF LATIN AMERICAN COUNTRIES

LORETO M. DOMINGUEZ

THIS STUDY presents national income estimates for the Latin American countries except four — Guatemala, Haiti, Costa Rica, and Nicaragua. Owing to the paucity of statistical data the estimates for most of the countries can be no more than rough approximations. In those for which the basic statistical data are available, estimates have been prepared in greater detail. The reliability of the estimates therefore varies widely from country to country, reflecting to a considerable degree the national statistical material available. This material, however, has seldom been used to its fullest extent. Native investigators, familiar with national data, have often encountered theoretical and methodological difficulties in preparing their estimates. As to the author's own contribution, the fact that the estimates were prepared in Washington, with the material obtainable there, should go far to explain their nature and the errors that have undoubtedly been made. The important thing, however, is that more and better work is possible. The field is virtually unexplored and in many countries an experienced group of statisticians enjoying official support could produce, even with the few data, estimates in sufficient detail, classified by small enough categories, and with such narrow margins of error that they would be extremely useful tools of economic analysis and important guides for the social, fiscal, and economic policies of the countries concerned.

In preparing these estimates, studies made by investigators in the countries have been reviewed and appraised. The estimates for Uruguay, Paraguay, El Salvador, and Honduras, the first ever made, are based upon commodity production series

(agriculture, manufacturing, extractive industries, and building construction) and employment and income ratios in countries where more data were available. Obviously, these preliminary estimates must be viewed with caution and improved upon when other series can be substituted.

In a brief final section, the various national estimates are compared and converted into dollars, by means of purchasing power parities based upon the retail prices of a small group of food items consumed in every country of the hemisphere. The difficult problem of international comparisons of national income is thus faced, though no satisfactory solution has been found.

The data for this paper have been drawn from material with which the author has been working in connection with a program initiated by the Inter American Statistical Institute more than a year ago. The long range objective is to strengthen the basic economic and social statistics from which national income estimates in the American nations must be computed. The author came to the United States from Argentina to join the staff of the IASI for two years of work on national income methodology under the technical guidance of Simon Kuznets, to whom both the author and the Institute are greatly indebted. More than once the author — aware of the deficiencies of the work — continued only because of the encouragement and sympathy Professor Kuznets gave him. The estimates are released upon the understanding that they are not the final, authoritative estimates the IASI expects to issue from time to time in cooperation with the respective countries, but rather the best provisional estimates possible to make with the fragmentary data available.

1 INTRODUCTION

To understand the difficulties encountered in attempting to estimate the national income of the various Latin American countries, one must know the status of their statistical development.

Of the twenty countries covered by this survey, thirteen have taken population censuses since 1930,¹ but five (Brazil, Chile,

¹ El Salvador, 1930; Colombia, 1938; Brazil, Chile, Dominican Republic, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, and Venezuela, 1940; and Cuba, 1943.

Mexico, Nicaragua, and Venezuela) have not yet published the summary results of censuses taken in 1940 and 1941. Five others (Cuba, Guatemala, Honduras, Venezuela, and El Salvador), which have recently taken population censuses, omitted the gainfully occupied and its distribution by industries. This information is essential to the preparation of a reliable estimate, especially when — as is generally the case — many of the basic economic series do not cover fully the activities measured. Guatemala and El Salvador have, however, published some figures showing the occupational distribution of the population, by means of which the size and industrial distribution of the gainfully occupied can be estimated.² In short, only six countries offer direct census information on the gainfully occupied for some period within the last fifteen years or so, although others have official or unofficial estimates.

Agricultural, industrial, commercial, and service censuses are on the whole not much better than population statistics (Table 1). Only three countries (Venezuela, Mexico, and Chile) have recently taken censuses covering the activities of the majority of their inhabitants. Between 1935 and 1940 the Dominican Republic took a population, an agricultural, and a manufacturing census, but, as in most other countries, the information on trade and service is inadequate. Argentina took an agricultural census in 1937 and since 1935 has been making biennial surveys of manufacturing, but estimates of the industrial distribution of the gainfully occupied are somewhat contradictory. As statistical information from the other countries is even less adequate, any attempt to estimate their national income immediately entails determining the relative coverage of the series that are available. As a rule, there are data on the value of agricultural and mineral production (seldom linked to the employed population) and incomplete manufacturing series, in some cases covering only the gross value of product. In a few countries there are studies on the cost of living or family expenditures, but their coverage is quite logically confined to one or a few large cities where living conditions differ materially from those in rural or agricultural areas. Ex-

² For a detailed description of the status of population data in Latin America see Ricardo Luna Vegas, 'Métodos de los Censos de Población de las Naciones Americanas', *Estadística*, Journal of the Inter American Statistical Institute, March 1945.

cellent studies have been made for Medellin, Colombia, and for Caracas, Venezuela. In addition, there are usually some wage data, a few price indexes, and a few other less important series. Data on the service industries are, without exception, very incomplete and generally unsatisfactory for the purpose at hand.

Owing to the peculiarities of the economy of most Latin American countries the investigator is confronted with prob-

TABLE 1

Basic Official Data Relevant to National Income Estimating for Twenty Latin American Countries

	GAIN- FULLY OCCU- PIED	CENSUSES				FAMILY INCOME & EXP. ^b	WAGE DATA	COST OF LIVING ^b
		Agr. ^a	Mfg. ^c	Trade	Service			
Argentina	..	1937	1935 ^e	..	..	1935	x	x
Bolivia	..	..	1940	..	..	..	x	..
Brazil	1920 ^d	..	o	o	o	1934	x	x
Chile	1930	1935-36	1937	1937	..	..	x	x
Colombia	1938	..	f	..	..	1936 & 38 ^g	x	x
Cuba	..	..	..	..	..	..	h	i
Costa Rica	..	..	..	..	..	..	..	x
Dominican Rep.	1935	1940	1939	..	..	..	..	..
Ecuador	..	..	..	..	..	1942 ^j	x	..
El Salvador	k	..	..	..	..	..	x	..
Guatemala	k	..	..	..	..	..	x	..
Haiti	..	..	..	..	..	..	..	..
Honduras	k	..	..	..	..	..	..	..
Mexico	1930 ^l	1930	1935 ^l	1939	..	1934	x	x
Nicaragua	k	..	..	..	..	..	..	..
Panama	1940	1943 ^m	..	..	..	..	..	..
Paraguay	..	..	n	..	..	..	x	..
Peru	1940	..	o	..	..	..	x	x
Uruguay	..	1937	1936	..	..	..	x	x
Venezuela	p	1937	1936	1936	1936	1939	x	x

x Periodic data.

.. No data or censuses.

^a Practically all countries have value of production series, although it is seldom possible to determine what part of total production is covered.

^b This list may be incomplete since most of the investigations are for a specific place and time, and some may have escaped our review.

^c Biennial censuses have been taken since 1935; the latest is for 1941.

^d The industrial distribution of the gainfully occupied resulting from this census was quite unsatisfactory and has been changed considerably.

^e The results of these censuses have not yet been published. For manufacturing there are some value of production estimates based on excise tax figures.

^f The industrial series do not cover all manufacturing activities.

^g Studies for the City of Bogota in 1936 and Medellin in 1938.

^h Through the social insurance system, figures on total wage and salary payments in private industry are published. They are not, however, related to employment data.

ⁱ Cost of food index.

^j Over-all study of food consumption by the total population.

^k The censuses did not show the gainfully occupied, but did give the occupational distribution of the population.

^l The summary results of the 1940 Census have not yet been published.

^m Only incomplete results have been published. The census covers only the District of Penonome, which is considered 'typical'.

ⁿ Incomplete figures on value of production.

^o Only a few incomplete series available.

^p Results for only the Federal District and the State of Anzoategui have been published.

lems statisticians and economists of the more developed countries do not have. The correlation between the degree of economic development of a country and the quantity and reliability of its data should not surprise anyone. In modern economies, where manufacturing is important and markets are well organized, statistical information on the many phases of economic processes is essential to the successful management of both private and public enterprises. In such countries, data otherwise expensive to collect and publish are quite often a byproduct of the economic activities since competition compels every business man to rely upon statistical information. Consequently, there is not only a willingness to provide information to the collecting statistical agencies, but also a keen demand for their figures. On the other hand, in countries where the greater part of the output consists of agricultural products or handicraft articles for home consumption or for sale in small regional markets where competition is limited, such data are by no means essential. Furthermore, in these economies the need for governmental supervision, management, or planning is not so great, or in any case the demand for it is not felt.

Large non-monetary or non-market economies — superimposed, it is true, upon more developed groups — and the consequent paucity of data give rise to the first basic problem in attempting to estimate national income in Latin America. To a greater or lesser degree the estimates presented here are affected by the limitations of the data on agricultural output produced for home consumption or for exchange on a commodity basis for other products or services. Though non-recorded production was estimated, there is no assurance that the coverage is complete. The great importance of production for direct consumption is evident from Table 2, which shows that in only five countries (Argentina, Uruguay, Chile, Panama, and Cuba) are relatively large proportions (between 32.7 and 42 percent) of their inhabitants engaged in transportation, trade, finance, and other services. But even these percentages are smaller than those for the United States and Canada. The high figure for Panama, 36.4 percent, is explained by the peculiar position of the country, which enjoys a thriving tourist trade from the Canal Zone and receives a large share of its income from wages and salaries of Panamanian nationals employed in the Zone. In

the other countries employment in service industries is less than 24 percent, and as low as 6.7 percent in Bolivia. The extremely high employment figures in agriculture can be explained only by its low productivity. In three countries where agricultural

TABLE 2
Seventeen American Countries
Percentage Distribution of the Gainfully Occupied

		TOTAL	AGRI- CULTURE	MIN- ING	MFG.	SERV- ICES
United States	1940	100.0	18.0	2.0	28.9	51.1
Canada	1941	100.0	28.4	1.8	21.7	48.1
Argentina	1937	100.0	42.4		16.0	42.0
Uruguay	1937	100.0	45.0	0.3	13.1	41.6
Chile	1930	100.0	34.7	5.3	19.6	40.4
Panama	1940	100.0	52.3	0.2	11.1	36.4
Cuba	1942	100.0		67.3		32.7
Brazil	1940	100.0		69.4	6.7	23.9
El Salvador	1930	100.0	73.0		5.1	21.9
Honduras	1940	100.0	72.4	0.6	7.7	19.3
Colombia	1938	100.0	62.0	2.4	16.9	18.7
Peru	1940	100.0	62.5	1.8	17.2	18.5
Guatemala	1940	100.0	71.1		12.5	16.4
Mexico	1930	100.0	70.0		14.4	15.6
Dominican Republic	1935	100.0	84.3		6.2	9.5
Venezuela	1936	100.0	84.7	1.4	5.6	8.3
Bolivia	1940	100.0	88.7	3.5	1.1	6.7

Sources of data are the respective population censuses, except in a few countries such as Argentina, for which the gainfully occupied have been estimated to be about 35 percent of the total population.

The distribution by industries is based on information from the Agricultural Census and manufacturing surveys. Other sources of information are given in the respective national income estimates in Section 2 of this study.

There are no data for Costa Rica, Nicaragua, Haiti, Ecuador, or Paraguay.

employment is relatively low (Argentina, Uruguay, and Cuba), the industry is very specialized, utilizes a great deal of machinery, and is carried on under extremely favorable soil and climatic conditions. In another country with low agricultural employment, Chile, the industry, though not geared for export as in the other three countries, is influenced also by favorable natural conditions. In addition, Chile has a productive mining industry. Service industries in the other countries are in general undeveloped, and few products are exported (see Table 3).

Among the lesser problems at least one or two should be pointed out. In many countries where the data are not sufficiently detailed, transfers abroad of interest and dividends on

foreign capital investments cannot be allocated to the original industrial sources. Consequently, the only practical solution is to undertake a final adjustment of the total national income resulting from interest and dividends paid out or received from

TABLE 3
Twenty Latin American Countries
Classified by Their Chief Exports, 1938

	CHIEF EXPORTS	% OF TOTAL EXPORTS
	<i>Diversified Agricultural Exports</i>	
Argentina	Wheat, corn, linseed, flour, meats, wool, hides, skins	82.3
Uruguay	Wool, meats, hides, linseed	83.4
Paraguay	Cotton, yerba mate, quebracho extract, cattle hides, animal products	87.9
	<i>Mainly Mineral Exports</i>	
Bolivia	Tin, silver, tungsten	81.0
Chile	Copper, nitrates, iodine	80.6
Peru	Petroleum, copper, cotton, sugar	77.5
Venezuela	Petroleum and derivatives	93.3
Mexico	Lead, zinc, petroleum, copper, silver, gold	71.4
	<i>Non-diversified Agricultural or Mineral Exports</i>	
Brazil	Coffee, cotton	63.2
Colombia	Coffee, bananas, petroleum	93.5
Ecuador	Cocoa beans, coffee, rice, petroleum, cyanide precipitates, silver, gold	76.0
Costa Rica	Coffee, bananas, cocoa beans, gold	90.0
El Salvador	Coffee, gold	92.3
Guatemala	Coffee, bananas	88.4
Honduras	Bananas, silver, gold	92.3
Nicaragua	Gold, coffee, bananas	81.9
Panama	Bananas, cocoa beans	85.4
Cuba	Sugar, tobacco	88.3
Dominican Republic	Sugar, cocoa beans, coffee	81.0
Haiti	Coffee, cotton, sugar, sisal, bananas	91.3

Summarized from *The Foreign Trade of Latin America* (U. S. Tariff Commission, 1942) Vol. 1 and 2. Only exports constituting more than 5 percent of the total value of exports in 1938 are included in this table.

foreign investments. The problem is, of course, not confined to Latin American economies, but exists in every country where there are foreign investments. The feature that characterizes Latin America is that foreign corporations are engaged in the exploitation and exportation of natural resources in a raw or semi-processed state; e.g., Chilean copper, Bolivian tin, and Venezuelan oil. The products are priced in foreign markets, but only after transportation, insurance costs, etc. have been added and the products have undergone a certain amount of processing. The practice usually followed by foreign corporations is to bring into the country, from the proceeds of sales, enough funds to pay current expenses, such as fuel, wages and salaries, and

taxes, and leave net profits abroad. A part of the profits may be reinvested in machinery and equipment, imported, as a rule, free of duty.

If the purpose of the national income estimate is to show the part of national income available for consumption or investment by the respective nationals, rather than the total originating in the country, the problem disappears when income items transferred abroad are ignored. This procedure, so far unavoidable, obscures valuable information on the real importance of a given industry to a country. In Venezuela, as will be seen in Section 2, the contribution of the oil industry to the national income is a small fraction of recorded oil exports, although the system by which the latter are evaluated seems somewhat arbitrary. Provisional estimates for Chile show that only about 7 percent of its national income originates in mining, although the industry is obviously much more important than this percentage indicates. Partly, at least, this is due to the proportionally heavy taxation to which the mining industry is subject. Since corporate taxes are excluded from the net income of the industry paying them, the industry's contribution to the economic welfare of the country is not readily disclosed unless the respective taxation figures also are presented.

During the depression of the 1930's most of the countries exporting raw materials found themselves with shrinking foreign exchange reserves, which compelled them to cut imports and other expenditures abroad. Many stopped, partly or completely, the payment of the principal or interest, or both, on indirect foreign investments. In addition, several of the issuing countries were able to buy their bonds in foreign markets at prices well below their nominal values.

Perhaps the proper treatment of the sums not transferred abroad is, in cases of moratoria, to include them as a negative item in government savings. The redemption of bonds below the nominal issuing value is probably more debatable. As a rule, profits derived from the revaluation of capital assets within a country are excluded from its national income. When two countries are involved, the country buying its foreign debt at bargain prices is obviously obtaining a real, not a purely nominal gain.

2 AVAILABLE ESTIMATES

Obviously, estimating the national income of Latin American countries is, in some ways, similar to solving a jigsaw puzzle when some — and in certain cases, many — pieces are missing. Data for most Latin American countries are still far from a state that would admit of detailed estimates as reliable as those for the United States. This defect will become more apparent as the various estimates are reviewed. Their accuracy necessarily varies with the abundance and quality of the data. Some give merely an over-all picture of the total national income with elementary divisions determined by the source material rather than by logic. For a few countries data are so scarce that it is impossible to prepare even the crudest estimate.

Despite the insufficiency of the material, in a few countries attempts to estimate national income were made as long as twenty-eight years ago — in Argentina by Alejandro Bunge, in Brazil and Mexico somewhat later by Bento Miranda and Alanís Patiño. Another pioneering series of estimates was prepared about ten years ago by Raúl Simón of Chile. However, these few estimates are exceptions. The estimate for Brazil (1926) is somewhat crude and inaccurate, but the other investigators had at their disposal a variety of data available nowhere else in Latin America. Ing. Bunge was able to use the results of the then recent (1914) general census (population, manufacturing, etc.) and the agricultural census of 1908, as well as several series of which some were later discontinued. The situations in Chile and Mexico were similar when Simón and Patiño undertook their studies. The above estimates, fruits of the interest and curiosity of individual investigators, did not stimulate sufficient interest to be expanded or improved. Those of Ing. Simón for Chile were continued until recently by a simplified method.

Still, insufficiency of material may not be the sole explanation for the slight interest shown in Latin America in national income studies. Until very recently economic thinking was focused on foreign trade and monetary subjects. Consequently, there is a more generalized interest in financial, banking, and trade series and in balance of payments estimates than in national income.

The estimates mentioned above are apparently the only ones published until 1940 or so. The emphasis the war placed on national income, industrial capacity, and taxation, and the current trend in economic thinking, which stresses national income concepts, stimulated the more recent estimates.

Since 1940 estimates have been increasing steadily in number. New interest was aroused by the Monetary Parley of Bretton Woods, where the forty-four signatory countries agreed to provide "such information as it (the Fund) deems necessary to its operation, including as the minimum, for the effective discharge of the Fund's duties, national data on the following matters . . . national income".³ These data were requested also at the International Aviation Parley in Chicago⁴ and at the San Francisco Conference. But, as has been pointed out, the basic statistical material is so inadequate that a majority of the new estimates are influenced by subjective decisions of the computers or provide only a total figure without useful subdivisions.

A *Argentina*

(1) *Estimate of Alejandro E. Bunge, 1916*⁵

In addition to the national income estimate reviewed here, Bunge gives several other estimates, among them national wealth in 1908 and 1916. The methodology of the former is said to be similar to that of investigations undertaken by the United States Census Office.⁶ One chapter deals with the purchasing power of money and compares the cost of living in Argentina and the United States. Several others treat governmental expenditures and the tax structure.

The total national income of Argentina was estimated in two parts. The first is based on the 'yield of productive capital', which in essence includes profits, interest on capital, and rent

³ Art. VIII, Sec. 5, Point 8, of the Articles of Agreement.

⁴ The Civil Aeronautics Board in cooperation with the Financial Section, Latin American Unit, Bureau of Foreign and Domestic Commerce, prepared for this purpose a set of national income estimates.

⁵ *Riqueza y Renta de la Argentina—su Distribucion y su Capacidad*, Contributiva (Agencia General de Libreria y Publicaciones, Buenos Aires, 1917).

⁶ Special reports of the United States Census Office, *Wealth, Debt and Taxation* (Department of Commerce and Labor, 1907 to 1915).

on land. The second covers income from 'individual work' and includes wages and salaries, incomes of domestic workers, and of business men and professionals.

(a) YIELD OF PRODUCTIVE CAPITAL. Somewhat similar figures were derived by two methods. One, utilizing the results of the 1914 General Census, shows the real wealth of the country, divided into two categories: 'productive' and 'unproductive'. The yield of productive wealth was 1,090 million pesos or 4.5 percent of the total. The other method is more elaborate and utilizes a considerable variety of data. As in the first method, in some cases a yield was also assumed for certain types of capital goods. In general the estimate seems conservative and the yields selected — when no direct figures were available — are usually low (Table 4).

TABLE 4
Argentina
Yield of Capital
Alejandro E. Bunge's Estimate

	YEAR	VALUE (thousands of pesos)	YIELD	% YIELD
Total		24,984,795	945,852	3.8
<i>Territorial property</i>		12,344,000	428,560	3.5
Exploited land ^a	1915-16	6,520,000	195,600	3.0
Urban & rural buildings ^b	1915-16	4,750,000	190,000	4.0
Rural installations	1915-16	1,074,000	42,960	4.0
<i>Capital applied to land</i>		4,853,000	194,000	4.0
Forestry & mines		°	°	
Agricultural machinery & equipment	1914	1,650,000	°	
Cattle	1914	3,203,000	194,000	6.0
<i>Other capital</i>		7,787,793	323,292	4.2
Railroads	1915	3,375,066	103,441	3.1
Corporations (soc. anon.)	1914	1,017,000	50,065 ^d	4.9
Banks, etc. (noncorp.)	1913-14	385,524	19,276	5.0
Manufacturing	1908-15	1,330,203	66,510	5.0
Trade	1910-16	1,680,000	84,000	5.0

Data on territorial property are from the 1914 General Census; on urban and rural buildings, from the 1908 Agricultural Census; those for railroads, industry, and commerce are adjusted official figures and estimates.

This table is, with slight changes, a summary of Tables 87, 88, and 89 in *Riqueza y Renta de la Argentina*.

^a Includes 100,000 Hs. used by cities and towns, out of a total of 93,000,000 Hs.

^b Excludes public buildings, schools, parks, etc.

^c Omitted to avoid duplication.

^d Gross profits amounted to 80.6 million pesos. The figure given is for dividends distributed.

The figure for the 'yield of capital' finally included in the national income estimate was 1,030 million pesos, an amount between the two estimates.

(b) INCOME FROM INDIVIDUAL WORK. Income from individual work is based upon an estimate of the gainfully occupied from the 1914 Census and various figures on average earnings. Ing. Bunge reclassified the Census figures into three main groups, the first two of which cover workers and other persons with relatively low incomes, while the third is for the higher brackets (Table 5).

TABLE 5
Argentina
Gainfully Occupied, by Industry, 1914
Alejandro E. Bunge's Estimate

	TOTAL	GROUP A	GROUP B	GROUP C
		(thousands)		
Total	3,233.1	2,272.6	368.2	541.6
Agriculture & cattle raising	529.9	462.5	2.3	65.1
Industry & crafts	841.2	807.3		33.9
Trade	296.3	5.6	28.8	259.3
Transportation	110.8	97.8	9.2	3.8
Real estate & movable property	63.5			63.5
Domestic service	218.6		218.6	
National defense	9.6			4.8
Public administration	108.9		76.2	32.7
Religion	5.6		5.6	
Jurisprudence (law)	9.1			9.1
Health (sanitary professions)	14.8	3.1	1.5	10.2
Education	83.2		0.8	39.1
Fine arts	14.2		3.3	10.9
Arts & sciences	8.8			8.8
Sports & physical culture	2.0		1.8	0.2
Misc. & improperly designated	919.3	896.3	20.1	0.3

Riqueza y Renta de la Argentina, pp. 95-7. Several small errors have not been corrected; the 'Total' column agrees with Census results, but the sum of columns 'A', 'B', and 'C' does not check with this total because certain figures under 'Education', 'National defense', and 'Miscellaneous' were omitted, totaling 50.7 thousand persons. The Census also listed 1,793.7 thousand persons over 14 years of age, of whom 1,536.0 were women for whom no occupation was given. This group is, perhaps correctly, excluded from Bunge's estimate. On the basis of the above figures the gainfully occupied constituted 40 percent of the total population, according to the Census.

Group A. The average earnings of Group A are based on the results of two surveys undertaken by the National Labor Department (Departamento Nacional de Trabajo), covering 221 families (1,154 individuals) in 1913 and 156 families (768 individuals) in 1914. The average income per worker was 1,086 pesos. Ing. Bunge points out that more children under 16 years

of age worked in cities than in agricultural areas. On the other hand, as the proportion of wage earners with particular skills and higher pay was larger in cities, the above-mentioned figure is probably characteristic of the country as a whole. On this basis, the income of Group A was 2,048.4 million Argentine pesos.

This estimate may be checked by another approach. Average daily wages published by the National Labor Department for 'male adults', 'female adults', and 'children' were weighted according to the age and sex distribution of the working population. On the assumption that the number of working days per year is 300, the estimate is 1,934.6 million pesos, 113.8 million less than the first estimate.

Group B. Group B is composed of 368.2 thousand persons, of whom 172.9 thousand are women. It is subdivided into domestic servants, 218.6 thousand persons; administrative employees, 72.9 thousand persons; and 'other' (low income), 76.7 thousand persons.

Domestic servants are attributed an average income per year of 851 pesos, or about 25 percent less than that of Group A. Administrative employees are assumed to have an average annual income of 1,111 pesos, the equivalent of that earned by all government employees (federal, state, and municipal) below the 2,000 pesos a year level, which would roughly correspond to the definition of Group B. The 'other' group is attributed the same average. Accordingly, Group B would have an income of 352 million pesos.

Group C. The persons in Group C were attributed an average income equal to that flowing to all government employees (federal, state, and municipal) above the 2,000 pesos a year level: 3,882 pesos. Ing. Bunge points out that a special, though limited, survey he undertook showed that the income of persons engaged in trade (small owners, managers, etc.) was not below the average for medium and highly paid government employees. On this basis, the total income of Group C was 2,102.0 million pesos.

Total national income. In assembling the final figures income from capital is given as 1,030 million pesos, whereas the two figures derived were 1,090 and 945.0 million pesos (Table 6).

In the final total the part that goes to foreign residents on their investments in Argentina, 206 million pesos, was estimated on the basis of foreign investments, 5,000 million pesos. Another capital item is 'income from natural capital', defined as income

TABLE 6
Argentina
Total National Income, 1916
Alejandro E. Bunge's Estimate

	TOTAL	INCOME FROM PERSONAL WORK (millions of pesos)	YIELD OF CAPITAL
Wage earners	2,022.1	1,935.0	87.1
Domestic service & other	367.9	352.0	15.9
Business and professional men, etc.	2,823.0	2,102.0	721.0
Total	5,213.0	4,389.0	824.0
Foreigners, non-resident	206.0		206.0
Total national income	5,419.0	4,389.0	1,030.0

Riqueza y Renta de la Argentina, p. 146.

from personal work applied to personal capital and covering the value of fruits, vegetables, etc. produced and consumed by households. The estimate is simply 10 percent of the income from capital, or 103.0 million pesos, allocated between workers (87.1 million) and persons in domestic service and 'other'.

(2) *Ministry of Finance Estimate, 1941*

In the Ministry of Finance estimate there are certain discrepancies between the concepts or definitions said to have been adopted and the statistical items actually computed. In its final form the estimate covers wages and salaries paid, profits, rent of land and buildings, including residential, plus depreciation on machinery, equipment, and buildings. Interest on capital seems to have been omitted and no adjustment for transfers abroad of this item was made.

The depreciation figures are given separately for each industrial group so that they can easily be subtracted to obtain a net income concept. The only exception is in 'Wholesale and retail trade', for which 1,260.4 million pesos, representing both profits and depreciation, is given. A reduction of 12 percent in the national income figures so obtained was finally made in order to obtain 'net national income'. It is indicated that this percentage is based on United States estimates. On the whole it

seems, nevertheless, that the final results do not differ greatly from those which would have been obtained by following a more direct method and using purely national data.

The contribution of government (national, state, and municipal) was computed by taking personal payments (wages and salaries) and interest on and amortization of the public debt.

Income originating in agriculture and cattle raising was estimated by deducting certain cost items from the gross value of production. Some of the data are from a special sample survey of 1,000 farms. For all the other industrial groups a payments approach seems to have been adopted. Table 7 was transcribed,

TABLE 7
Argentina
National Income, 1941
Ministry of Finance Estimate

	MILLIONS OF PESOS
1 Agriculture, forestry, & cattle raising (lines 2-6)	2,831.3
2 Agriculture (lines 2a-e)	1,453.8
a Rent of land	429.1
b Cereals & linseed	479.8
c Fruits	216.1
d Vegetables	158.2
e Other (incl. 1/10 of the output of feed & fodder)	170.6
3 Forestry (wages, salaries, & rent of land)	121.2
4 Cattle and dairy (lines 4a-c)	933.3
a Food & fodder produced by the cattle raising industry	295.5
b Rent of land	366.6
c Wages, salaries, and profits	271.2
5 Poultry raising, hunting, & fishing (wages & profits)	98.0
6 Dairy industry	225.0
7 Mining (lines 7a-c)	64.0
a Rent of land	11.4
b Wages & salaries in cash & kind	37.4
c Profits	15.2
8 Manufacturing (lines 8a-b)	1,769.7
a Wages & salaries in cash & kind	1,131.6
b Profits	638.1
9 Building construction (lines 9a-b)	105.7
a Wages & salaries in cash & kind	75.7
b Profits	29.9
10 Electricity & gas (lines 10a-b)	132.9
a Wages & salaries in cash & kind	54.5
b Profits	78.4
11 Depreciation on mining, manufacturing, building construction, & electricity & gas	250.0
12 Total productive industries (lines 1 + 7 + 8 + 9 + 10 + 11)	5,153.5
13 Communications (wages, salaries, profits, & amortization) (lines 13a-c)	76.4
a Radio	5.0
b Telephone	59.7
c Telegraph	11.7

TABLE 7 (*Continued*)

14	Transportation (lines 14a-c)	502.0
	a Railroads	290.4
	b Merchant marine	70.3
	c Other	141.3
15	Wholesale and retail trade (lines 15a-b)	2,332.8
	a Wages and salaries	1,072.4
	b Profits and depreciation	1,260.4
16	Total distribution industries (lines 13 + 14 + 15)	2,911.3
17	Government (wages, salaries, interest, & amortization) (lines 17a-c)	1,689.2
	a Federal	1,007.3
	b State	405.7
	c Municipal	276.2
18	Finance (wages, salaries, commissions, & profits) (lines 18a-d)	167.3
	a Banks	115.1
	b Insurance	51.2
	c Other	16.0
	d Difference between interest collected & paid	-15.0
19	Real estate (lines 19a-b)	702.9
	a Net rentals	427.3
	b Depreciation	275.6
20	Professions (wages and fees)	164.4
21	Total service industries (lines 17 + 18 + 19 + 20)	2,723.9
22	Total (lines 12 + 16 + 21)	10,788.6
23	Net national income (88% of line 22)	9,494.0

Revista de Economica Argentina, Año XXVI, No. 318, Dec. 1944, pp. 406-12.

with minor changes and the sources of data omitted, from the *Revista de Economica Argentina*.

(3) *Central Bank Estimate, 1935-45*

At the beginning of February 1946 the Central Bank of Argentina published a new national income estimate by industrial origin covering 1935-45. National income is defined as "the sum total of all goods and services produced in the country in a given year". The contribution of each economic or industrial group is the 'value added', i.e., the difference between the sales value of its product and the payments made to other industries in order to carry on its productive processes. The method of computation, set down in detail, indicates that no deductions have been made for depreciation on machinery, equipment, and buildings, as well as business taxes. 'Value added' is made up, then, of *all the sums earned by the productive factors, plus capital consumption and business taxes*. Except for minor adjustments, such as changes in business reserves and inventory revaluations, the resulting figures, a form of 'gross national product', are not what is generally understood by national income. The only

apparent difference between it and gross national product as computed by the United States Department of Commerce is that governmental services, in the Central Bank estimate, include labor payments alone. Interest on the public debt is not computed. Unfortunately, figures for depreciation and business taxes are not given in the report; it is therefore impossible to make the necessary adjustments to obtain national income. Table 8 gives the summary results by industrial origin.

An unusual feature of the Central Bank report is the attempt to express the 'physical volume of national income' by industrial origin in monetary terms. Whenever possible, commodities and services were valued at 1935 prices and the resulting gross value of production transformed into indexes which were linked to the estimated 'net' contribution of the industry in 1935.⁷ The values for 'trade' were computed by applying the 1935 trade margins to the annual value in 1935 prices of the commodities handled. Governmental and personal services were estimated by applying indexes of employment to their estimated contribution in 1935 to the national income.

In reality, the results (Table 9) are an index of the physical production of commodities and services weighted by the contribution of each industry to the national income in 1935, expressed, however, not as an index based on 1935, but in pesos with a base equal to the national income in 1935.

What is designated 'national income' is in reality something very close to the market value of all the commodities and services produced in the country. The 'physical volume of the national income' is intended to be its counterpart in physical terms. Consequently, a simple division of one set of figures by the other should measure changes in the general price level approximately (Table 10).

The wide differences in the fluctuations of the two indexes as well as in their levels, especially in the last five years, leads one to think that the estimates may be subject to a rather wide margin of error. The difference in coverage and meaning of the indexes is not enough to explain the discrepancies, for the inclusion of services in the wholesale price index would tend to raise it even more and hence widen the margin of error. In short, it

⁷ 'Net' as defined in the report, i.e., including taxes and capital consumption.

TABLE 8
Argentina

National Income by Industry, 1935-1945, Central Bank Estimate

	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945
	(millions of pesos)										
Agriculture	2,022	2,295	2,993	2,357	2,508	2,457	2,851	3,399	3,366	3,770	3,610
Mining	102	112	135	138	155	176	192	216	212	227	265
Manufacturing	1,251	1,382	1,512	1,576	1,693	1,713	1,987	2,352	2,700	3,000	3,200
Building construction	175	204	246	301	283	305	345	355	379	498	550
Transportation, communication & public services	884	925	934	955	998	981	1,005	1,127	1,218	1,296	1,355
Trade	1,401	1,630	1,930	1,915	1,971	2,051	2,249	2,515	2,731	3,100	3,300
Finance	143	146	166	175	192	195	214	230	252	260	277
Government services	633	688	739	796	827	860	873	912	980	1,109	1,352
Personal services	544	573	638	646	665	687	744	807	880	1,035	1,146
Total	7,155	7,954	9,293	8,857	9,294	9,424	10,458	11,914	12,718	14,295	15,055

TABLE 9

Argentina

Physical Volume of National Income in Monetary Terms, 1935-1945

Central Bank Estimate

	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945
	(millions of pesos at 1935 prices)										
Agriculture	1,230	1,000	1,120	940	1,190	1,130	1,400	1,310	1,110	1,470	1,040
Cattle raising	800	890	920	890	1,000	970	1,100	1,200	1,210	1,130	1,140
Agriculture, incl. mining	2,130	2,010	2,160	1,970	2,340	2,270	2,680	2,700	2,500	2,790	2,380
Mfg. & construction	1,430	1,580	1,760	1,870	1,920	1,960	2,170	2,280	2,320	2,460	2,460
Trade	1,400	1,490	1,680	1,690	1,740	1,730	1,880	1,900	1,920	2,050	2,050
Services	2,200	2,340	2,450	2,540	2,630	2,630	2,760	2,850	2,940	3,000	3,110
Total	7,160	7,430	8,050	8,070	8,630	8,620	9,490	9,730	9,680	10,300	10,000

seems that either national income in current prices is understated or its 'physical volume' unduly overstated.

TABLE 10

Argentina

The Wholesale Price Index and the General Price Level
Implicit in the Central Bank National Income Estimate

	NATIONAL INCOME		INDEXES (1935=100)	
	Current Prices (millions of pesos)	1935 Prices	Implicit Price	Wholesale Price ^a
1935	7,160	7,160	100.0	100.0
1936	7,950	7,430	107.0	102.3
1937	9,290	8,050	115.4	116.1
1938	8,860	8,070	109.8	108.7
1939	9,290	8,630	107.6	111.5
1940	9,420	8,620	109.3	127.1
1941	10,460	9,490	110.2	149.3
1942	11,910	9,730	122.4	143.3
1943	12,720	9,680	131.4	208.3
1944	14,300	10,300	138.8	217.7
1945	15,060	10,000	150.6	223.9 ^b

^a *Suplemento Estadístico*, Banco Central de la Republica Argentina.

^b Ten months only.

B *Bolivia**Estimate prepared at the IASI, 1940*

Like Chile, Mexico, and Venezuela, Bolivia is, from a foreign trade point of view, a mining country. Tin and silver are the most important minerals but many others, such as copper, gold, bismuth, and petroleum, are also produced. Although there are no figures on total population or employment — Bolivia has not taken a census of population since 1900 — it is estimated that approximately 85 percent of the labor force are engaged in agricultural and pastoral pursuits. In 1940 the population was estimated to be 3,100,000, of whom perhaps 1,100,000 (35 percent) were in the labor force. Of these, it is known that about 12,000 were employed in manufacturing, 17,000 in government, 7,000 in railroad transportation, and 38,000 in mining. Another 50,000 were probably engaged in trade and the services. Somewhat more than 950,000 persons must therefore have been employed in agricultural and pastoral pursuits.

Information applicable to estimating national income is very sparse. From the manufacturing census taken in 1940 it appears that total wage-salary payments to the 11,577 employed per-

sons amounted to 58.4 million bolivianos.⁸ Annual average wages are 5,045 bolivianos. Wages of native workers, however, were lower, no more than 3,828 bolivianos a year. Average earnings per shift in mining were only slightly higher (5 percent) than in manufacturing.⁹ On this basis, total earnings for the 38,000 persons employed in mining must have averaged close to 5,250 bolivianos a year per employed person, or 200 million for the industry as a whole.¹⁰ The average salary of the 17,000 employees working for the government was about 8,900 bolivianos a year.¹¹

Data on agricultural production were apparently confined to cattle consumption, although corn, potatoes, cassava, peanuts, wheat, barley, cotton, rubber, and a wide variety of fruits and lumber are produced in large quantities, mostly for internal consumption. It seems, however, that living conditions in agriculture do not differ in any considerable degree from those of native workers employed in mining or manufacturing. Income in agriculture was estimated to be 3,500–4,000 bolivianos a year per employed person. Labor income in 1940, exclusive of the service occupations, amounted to 3,961.4 million bolivianos.

	EMPLOYMENT (thousands)	EARNINGS (bolivianos)	TOTAL LABOR INCOME (millions of bolivianos)
Agriculture	950.0	3,750	3,550.0
Mining	38.0	5,250	200.0
Manufacturing	11.6	5,045	58.4
Government	17.2	8,900	153.0
Total	1,016.8		3,961.4

The income of approximately 50,000 workers in service occupations (trade, the professions, etc.) should be added to the four groups in the tabulation. Their average income must have been similar to that of government employees, yielding a total of some 445 million bolivianos. Total labor income, therefore, seems close to 4,400 million bolivianos. Assuming that labor income constitutes 60 percent of the total — as it does in Venezuela and Chile — the national income of Bolivia in 1940 should have been close to 7,350 million bolivianos.

⁸ One boliviano in 1940 was worth 0.0254 American dollars.

⁹ Gabin Price, 'Labor Income in Bolivia', *Estadística*, No. 10, June 1945.

¹⁰ *Transportes 1940, Balances Mineros 1939* (Ministerio de Hacienda, Dirección General de Estadística).

¹¹ *Finanzas* (Ministerio de Hacienda, Dirección General de Estadística, 1940).

C *Brazil*(1) *Estimate of Bento Miranda, 1926*¹²

Sr. Bento Miranda followed two approaches in estimating the national income of Brazil. The first consisted of computing it as a percentage of aggregate wealth (Table 11); the second, of adopting a formula suggested by Sir Josiah Stamp, although important deviations were made. The basic figures are for 1919 — Census of 1920 — and were adjusted for changes in the value of money between 1918 and 1925.

TABLE 11
Brazil
National Income as a Percentage of Total Wealth, 1926
Bento Miranda's Estimate

	MILLIONS OF CRUZEIROS
Value of cultivated land, improvements, equipment, livestock, industrial machinery, buildings, movable property, harbors and railroads, mines & forest products	38,055
<i>Plus</i>	
70% to account for depreciation of currency between 1918 and 1925	26,639
Total	64,694
Total rounded-off	60,000
Net income (15% of "Total rounded-off")	9,000

With the second approach Bento Miranda tried to compute national income on the basis of the flow of commodities at retail prices. In doing this, however, capital formation is almost completely omitted; only some services are included (Table 12).

TABLE 12
Brazil
National Income, 1926: Sir Josiah Stamp's Method
Bento Miranda's Estimate

	MILLIONS OF CRUZEIROS
Retail value of agricultural, manufacturing, mining & extractive production	7,892.0
Consumption taxes on home production	131.2
Imports of consumption goods	993.2
Livestock	10.7
Manufactures	659.8
Foodstuffs	322.7
Taxes, transportation costs, & distribution costs of imports (40% of Imports)	397.3
Total	9,413.6

¹² *Discursos Parlamentares — Riqueza, Renda e Capacidade Tributaria, Edição de 1926*, quoted by Osvaldo Gomes da Costa Miranda in 'A Estimativa da Renda Geral do Brasil', *Boletim do Ministério do Trabalho, Indústria e Comércio*, June 1944, pp. 209-12.

TABLE 12 (*Continued*)

<i>Minus</i>	
Value of exports	2,178.7
Balance	7,234.9
Depreciation on equipment & stocks (20% of 'Balance')	1,446.9
Total national income at 1919 prices	5,788.0
Depreciation of the currency, 1918-25	4,051.5
Total national income at current prices	9,839.5

(2) *Estimate of Osvaldo Gomes da Costa Miranda, 1927*¹³

Bento Miranda's estimate was brought up to date by Osvaldo Gomes da Costa Miranda, using production figures published by the Agricultural Control and Promotion Service (Servicio de Inspecao e Fomento Agricolas) and more recent estimates of the value of industrial production. He thus avoids the rough adjustment Bento Miranda made to account for changes in the value of money. In general, however, the estimate follows lines similar to those of the preceding report, and the results are only slightly higher (Table 13).

TABLE 13

Brazil

National Income, 1927

Osvaldo Gomes da Costa Miranda's Estimate

	MILLIONS OF CRUZEIROS
Gross value of agricultural, manufacturing, mining & extractive industries, at retail prices	12,600.0
Consumption taxes on home production	236.0
Imports of consumption goods	2,170.0 *
Livestock	5.7
Manufactures	1,503.9
Foodstuffs	657.2
Taxes, transportation costs, & distributive costs of imports (40% of Imports)	864.0
Total	15,870.0
<i>Minus</i>	
Value of exports	3,190.0
Balance	12,680.0
Depreciation on equipment and stocks (20% of 'Balance')	2,536.0
Net national income	10,144.0

* There is a small arithmetic error.

¹³ *Boletim do Ministério do Trabalho, Indústria e Comércio*, Dec. 1944, pp. 212-5.

(3) *Estimates of Messrs. Bulhoes, Simonsen, and the Bank of Brazil, 1930-41*

Economic statistics cover only a fraction of the total productive activities of Brazil. Nevertheless, several attempts have recently been made to estimate the national income. The results vary considerably, ranging from 34.8 million to 74.6 million contos for 1941.¹⁴ Unfortunately, it is not known how the calculations were made, but in view of the limitations of the Brazilian data, it is likely that all were heavily influenced by purely personal judgments. The estimate by Octavio Bulhoes gives 28.7 million contos for 1940, 34.8 million contos for 1941, and 41.4 million contos for 1942.¹⁵ Mr. Simonsen, in an address before the Chamber of Commerce of São Paulo (June 13, 1944) stated that the national income of Brazil was 40.0 million contos. The estimates by the Bank of Brazil, Statistical and Economic Studies Section, for 1930-39 are considerably higher than any other. The method is not explained, and they may include a large share of imputed income. On the whole, they seem to overestimate the national income of Brazil. (Since 1939 the figures have been compiled by the Commission of Economic Defense.¹⁶)

MILLIONS OF CONTOS

1930	24.0	1932	21.0	1934	27.0	1936	36.0	1938	44.0	1940	61.6
1931	20.0	1933	25.0	1935	32.0	1937	42.0	1939	55.0	1941	74.6

A new valuation of Brazilian national income for 1940 is included in the group of Latin American estimates prepared at the Inter American Statistical Institute. The Brazilian Institute of Geography and Statistics, in cooperation with the Ministry of Finance, is at present engaged in preparing a new estimate which will undoubtedly be the most complete and reliable ever made in Brazil. It will have the great advantage of utilizing accurate data from the 1940 Census. Teixeira de Freitas, President of the Inter American Statistical Institute, is lending his full support to the project.

¹⁴ One conto equals 1,000 cruzeiros, 1,000,000 milreis, or approximately 50 United States dollars.

¹⁵ Quoted by Luiz Dodsworth Martins in 'Notas sobre o Calculo da Renda Nacional' (typewritten preliminary manuscript).

¹⁶ *South American Journal*, July 25, 1942.

D *Chile*

Current statistical information in Chile covers a wider range of subjects and at the same time is perhaps more centralized than in any other Latin American country. In addition, Chile can boast an excellent record in the matter of population and other censuses, all of which helps to explain the number of national income estimates and the relatively small differences among them.

As mentioned in the Introduction, the estimates of Ing. Simón are among the pioneer studies of this kind in Latin America. Despite their imperfections, they deserve a place in the history of these studies and consequently are described in detail in the following pages. The several new estimates of recent years are also commented upon as far as possible. The latest contribution is a study prepared under the supervision of Flaviano Levine of the Corporación de Fomento de la Producción de Chile (Chilean Development Corporation), to be published under its auspices in the near future. The figures and all the basic material have been made available to the author and the relevant parts also appear below.

As this study covers 1940-43, it overlaps in three years a similar estimate prepared at the IASI for 1935-42. Since the IASI estimate is merely provisional and was prepared in Washington with the material that could be found there, preference should be given to the new estimate compiled in Chile, i.e., at the sources of data. The differences do not seem too large to warrant disregard of the IASI estimate, which will probably be improved and linked with the estimate of the Corporación de Fomento in the near future.

(1) *Estimate of Raúl Simón, 1929-1941*¹⁷

Ing. Simón calculated Chile's national income for 1929-34 in five ways: as the yield of the national capital; the value of mechanical work; the value of goods and services; the aggregate of wages, salaries, and the yield of capital; and as the aggregate value of sales. After 1934 the second approach alone was used.

¹⁷ *Determinación de la Entrada Nacional* (national income) *de Chile* (Imprenta Nascimento, Santiago, 1935). Also *Anales del Instituto de Ingenieros de Chile*, Jan. 1935, Jan. 1938, and July-August 1940.

An index (1934:100) of the estimated KWH potential of the country was prepared and linked with the national income for 1934, the average of the five methods. By means of price indexes the resulting figures were converted into estimates in current prices.

(a) YIELD OF THE NATIONAL CAPITAL. These estimates are based upon the assumption that national income constitutes a fixed 15 percent of the aggregate value of the national capital or national wealth. The respective tables — prepared only for 1930 and 1934 — are summarized in Table 14.

(b) EVALUATION OF MECHANICAL WORK.¹⁸ The second approach (evaluation of mechanical work), an original one devised by Simón, is based on the conversion of coal production, imports of oil (petroleum), imports of gasoline, human and animal energy, hydro-electric energy, and the equivalent in coal of other sources of energy into kilowatt-hours.¹⁹

TABLE 14
Chile
National Wealth and Income, 1930 and 1934
Rául Simón's Estimate

	1930	1934
	(millions of pesos)	
Value of real estate	17,240	19,840
Value of livestock inventories	770	770
Agricultural equipment	610	730
Household equipment	1,110	1,670
Industrial equipment	1,200	1,400
Transportation equipment	1,827	2,400
Merchant marine	80	104
Harbors & public works	1,330	1,330
Telegraph & telephone	90	100
Electricity (plant & distribution lines)	850	1,100
Mining equipment		
Nitrate industry (nationalized capital)	3,000	1,880
Copper industry (nationalized capital)	1,900	2,500
Coal and other	150	226

¹⁸ *Determinacion de la Entrada Nacional de Chile*, pp. 50-4, and *Anales del Instituto de Ingenieros de Chile*, July-August 1940.

¹⁹ Neither hydro-electric energy nor 'other sources of energy' appear in the estimates before 1938. The quantities of 'other sources of energy' are assumed to be constant throughout the period, thus introducing a factor that tends to smooth the fluctuations in coal, oil, gasoline, animal and human work, and hydro-electricity. 'Other' constitutes about 15 percent of the total.

TABLE 14 (*Continued*)

Stocks		
Monetary gold		710
Products for home consumption		500
Exportable products		90
Imported products		60
Total national capital	31,447	36,336
Total national income (15% of total national capital)	4,720	5,460

The factors used to convert the above sources of energy into KWH are the following:

	KWH
0.7 kgs. of coal	1
0.5 kgs. of oil	1
0.4 kgs. of gasoline	1
1 man-year of work	300
1 animal-year of work	1200

The kilowatt-hours obtained by multiplying by the respective coefficient the quantities of coal, oil, etc. produced are evaluated by using the price of electricity for home consumption (0.81 centavos in 1929). The idea of evaluating the quantity of KWH produced in terms of the price of electricity was apparently inspired by the observation that the relation between national income for the United States in 1930 (\$70.3 billion) and the equivalent in KWH of the different kinds of energy produced happened to be very similar to the price of electricity for home consumption. Ing. Simón points out that "this relationship represents, in fact, something more than a simple statistical coincidence since it precisely establishes the price at which, under free competition, a consumer of electricity exchanges the value of his own human work for the mechanical work provided by an electric current carried to his own home".²⁰ Since the price of electricity in Chile after 1930 was apparently not fixed by free competition, it was approximated by using the cost of living index based on 1930.

After 1934 Simón continued to prepare estimates of the Chilean KWH potential and relate them to the 1934 'national income' derived as an average of the estimates calculated by the five methods mentioned above. The resulting figures were converted to current price levels, using the index of wholesale prices (Tables 15 and 16).

²⁰ *Determinación de la Entrada Nacional de Chile*, p. 21.

TABLE 15

Chile

KWH Equivalent of Different Sources of Energy
and National Income, 1929-1941

Raúl Simón's Estimate

	COAL	OIL	GASO- LINE	ANIMAL WORK	HYDRO- ELEC- TRICITY	OTHER	TOTAL	NATIONAL INCOME (millions of pesos)
	(millions of KWH)							
1929	2,160	1,980	320	1,440	212	1,070	7,182	4,770
1930	2,060	1,730	320	1,450	230	1,070	6,860	4,500
1931	1,570	904	318	1,460	240	1,070	5,562	3,290
1932	1,540	360	145	1,470	220	1,070	4,805	3,000
1933	2,200	424	178	1,495	270	1,070	5,637	4,500
1934	2,570	704	170	1,510	320	1,070	6,344	5,270
1935	2,720	760	248	1,540	350	1,070	6,688	
1936	2,670	764	220	1,580	380	1,070	6,699	
1937	2,830	1,342	250	1,610	420	1,070	7,460	
1938	2,920	1,228	330	1,640	600	1,070	7,788	
1939	2,680	1,062	320	1,670	693	1,070	7,495	
1940							8,194	
1941							9,000	

TABLE 16

Chile

National Income in KWH and Pesos, 1934-1941

Raúl Simón's Estimate

	1934	1935	1936	1937	1938	1939	1940	1941
KWH (millions)	6,344	6,688	6,699	7,460	7,778	7,495	8,194	9,000
Wholesale price index (1934: 100)	100	100	110	132	125	123	135	151
National income (mil- lions of pesos)	5,256 *	5,550	6,125	8,225	8,089	7,645	9,150	11,220

* Average of 5 methods.

(c) VALUE OF GOODS AND SERVICES.²¹ The value of goods and services is the sum of the value of agricultural production, the value of mineral production, the value contributed by manufacturing, freight, passenger, and mail transportation, the mobilization of capital (finance), government, retail and wholesale trade, and miscellaneous (Table 17). Simón's method of estimating each of these nine items is explained briefly.

A basic estimate of the *value of agricultural production* and certain cost deductions was prepared for 1934. The quantities produced were evaluated by applying wholesale prices in Santiago or at the point of exportation. From these values, railroad

²¹ *Ibid.*, pp. 54-71.

transportation costs, commissions, and sales expenses were deducted. The estimate was completed by adding the value of commodities consumed at the site of production. The estimate for years other than 1934 was based upon an index of agricultural prices on the assumption that the quantities produced remained constant throughout the period.

Only the value of the production of nitrates, copper, coal, and gold was included in the *value of mineral production*. It was assumed that the exclusion of other minerals would compensate for duplications due to the inclusion of the total value of production — as in the case of the four minerals mentioned above instead of income items alone. Profits of the nitrate and copper industries were excluded since they are earmarked for payments on the national debt abroad.

The estimate of the *value contributed by manufacturing* attempts to cover wages and salaries paid, dividends, depreciation on machinery, and interest on capital (bank and mortgage loans). Wages and salaries were based on 1930 industrial employment figures and a series of average wage-salary payments. Dividends, depreciation on machinery, and interest on capital were estimated *in toto* to be 10 percent of the capital invested in the industry. This last concept involves an addition to the corporate capital of 30 percent for loans to the industry and 20 percent for 'non-corporate' enterprises.

Estimates for other years are calculated by applying to wage-salary payments an index of the 'physical volume of production', in other words, wage-salary payments are assumed to fluctuate with production, but changes in average wage-salaries are disregarded. The second group of items is made to fluctuate with an index of sales of industrial products.

The contribution of *freight transportation* is estimated by applying average rates for the tonnage transported by railroad, the merchant marine, and trucks. While no deductions are made for costs, which do not constitute income for the sector, the approximate nature of the estimate perhaps renders this omission of little significance. A similar procedure is adopted for *passenger transportation*. *Mail transportation* is valued at 65-80 million Chilean pesos. No other information is given.

TABLE 17

Chile

National Income as the Sum
of Commodities and Services, 1929-1934

Raúl Simón's Estimate

	1929	1930	1931	1932	1933	1934
	(millions of pesos)					
Agricultural production	1,860	1,520	1,220	1,750	2,300	2,220 *
Mineral production	866	639	423	310	429	720
Value added by manufacturing	991	993	813	879	953	1,075
A Value of production	3,717	3,132	2,456	2,939	3,682	4,015
Freight transportation	625	590	454	342	403	464
Passenger transportation	289	289	276	276	295	301
Mail transportation	80	80	70	65	80	80
Mobilization of capital	229	229	229	229	229	229
Government services	682	703	641	558	630	715
Wholesale trade	500	441	364	326	456	518
Retail trade	700	640	510	456	640	724
Miscellaneous	150	150	125	125	175	200
B Value of services	3,255	3,122	2,669	2,377	2,908	3,231
Total (A + B)	6,972	5,578	5,125	5,316	6,590	7,246
Minus						
29% duplication	2,020	1,680	1,485	1,540	1,910	2,080
National income	4,952	3,898	3,640	3,776	4,680	5,166

Determinación de la Entrada Nacional de Chile, p. 71.

* Includes 420 million pesos consumed on the site of production.

Services for the mobilization of capital include banks and other credit institutions, as well as commercial and social insurance. The contribution of such firms is assumed to be given by their 'administrative expenses', estimated in various ways.

Government services are represented by all types of payment to persons working for the government, both federal and municipal.

It is assumed that the contribution of *retail and wholesale trade* constitutes a constant 10 percent of estimated wholesale sales and 20 percent of retail. Sales are obviously only approximate, equivalent to the value of agricultural, mineral, and manufacturing production, plus imports. These items are considered to give the value of wholesale trade. Retail sales are estimated to be 70 percent of wholesale.

The miscellaneous group is made up of several services not included above, such as domestic, professional, religious, which are valued at 150 million Chilean pesos, including 50 million to cover payments in kind to domestic workers.

The final step, called the *adjustment for duplications*, consists of subtracting 29 percent from the figures estimated for each group mentioned above. This adjustment is justified on the following grounds. Of 1,337,000 persons gainfully occupied, 391,000 (29 percent) are engaged in the production of all types of service. "The salaries obtained as a result of these services are used, in their final stage, in the purchase of commodities, so that by creating an additional demand, they tend to raise the price of commodities. . . . Theoretically and actually, products and services are equivalent, since the creation of both assumes personal work and (on this basis) units of *work* could be added without duplications. But the conversion of commodities and services into monetary units implies the influence of one upon the other, a factor which does not permit their addition without a duplication, the importance of which is proportional to their accumulated value." Consequently, this deduction "is equivalent to admitting that if there were no people engaged in the production of services, prices, or the value of production plus that of services, would be reduced by 29 percent".²²

(d) AGGREGATE OF WAGES AND SALARIES PAID PLUS THE YIELD OF CAPITAL. This estimate covers only wages and salaries and the 'yield of capital', including interest on capital invested in agriculture and trade, plus profits of corporate enterprises (Table 18). Wages in agriculture are computed as the product of employment and an average income of 2,400 Chilean pesos a year, the latter assumed constant throughout the period. Wages and salaries in other economic sectors (mining, manufacturing, trade, communications and shipping, public administration and national defense, the professions, domestic services, etc.) are approximated by similar methods. In general, the several estimates are based upon employment and average income obtained from different sources or calculated in various ways. In some cases the figures are actual estimates for each year; in others, e.g., manufacturing, the hypothesis that wages and salaries vary in proportion to production is adopted.

Interest payments on capital invested in agriculture are derived by subtracting from the gross value of production the cost of seed and other expenses (15 percent of the value of produc-

²² *Ibid.*, p. 70.

TABLE 18

Chile

National Income as the Sum of Income from Labor
and the Yield of Capital, 1929-1934

Raúl Simón's Estimate

	1929	1930	1931	1932	1933	1934
	(millions of pesos)					
Agriculture	1,373	1,123	915	1,313	1,373	1,373
Mining	467	370	208	178	238	273
Industry	843	843	625	735	800	875
Commerce	750	660	545	490	682	770
Transportation	274	304	264	260	331	335
Government	682	703	641	558	630	715
Professions	275	275	250	260	270	280
Domestic service	50	50	40	45	50	55
Miscellaneous	160	160	140	150	150	170
Total wages & salaries	4,874	4,488	3,628	3,989	4,524	4,846
Contribution to social insurance	85	194	62	60	68	77
Total labor income	4,959	4,682	3,690	4,049	5,592	4,923
Agricultural income from capital	21	0	0	0	351	293
Corporate profits	186	172	58	64	122	167
Total income from capital	207	172	58	64	473	460
Total national income	5,166	4,854	3,748	4,113	5,065	5,383

Determinación de la Entrada Nacional de Chile, p. 91.

tion); wages in cash and kind; salaries paid agricultural employees (in cash only); fertilizer, depreciation, taxes, social laws, etc. (10 percent of the value of production); and entrepreneurial income.

In 1929 the residual for 'interest payments' was 21 million Chilean pesos. As the 1930, 1931, and 1932 balances were negative, no charge is made on this account. In 1933 and 1934 the balances were again positive.

Data on corporate profits were taken from official sources, while interest on capital invested in trade was estimated as a fixed 7 percent charge. This capital is assumed to equal three months' sales.

(e) AGGREGATE VALUE OF SALES. In this estimate Ing. Simón assumes that national income is equal to wholesale sales plus distributive costs in retail trade. Sales are estimated by adding (a) the value of agricultural production at wholesale prices in Santiago or at the point of exportation (the basic estimate is for 1934; other years are estimated by assuming constant physical production and changes only in prices); (b) the value of

mineral production at the mine; (c) the value of manufacturing sales (Table 19). How (c) is derived is not known, but there

TABLE 19
Chile
National Income as the Sum of Sales, 1929-1934
Raúl Simón's Estimate

	1929	1930	1931	1932	1933	1934
	(millions of pesos)					
Agricultural	1,630	1,320	1,080	1,530	2,100	1,932
Mineral	866	639	423	310	429	720
Manufacturing	1,300	1,310	1,065	1,080	1,150	1,500
Total *	3,796	3,269	3,148	2,820	3,679	4,172

Plus

Cost of retail distribution (20% of 70%)

National income

Determinación de la Entrada Nacional de Chile, p. 93.

* There are several mistakes in the arithmetic operations. If corrected, 'national income' would be considerably altered.

seems to be an error in it since the value contributed by manufacturing, as calculated by the third method (see Table 17), is too low in comparison with the value of sales. A constant 20 percent charge is made on 70 percent of the value of wholesale trade (assuming that retail trade is 70 percent of wholesale).

COMMENTS ON SIMÓN'S ESTIMATES. Despite the wide differences in the methods followed by Simón in preparing his estimates, all five and their movements throughout the period are similar (Table 20).

TABLE 20
Chile
National Income, 1929-1934
Raúl Simón's Five Estimates

Method	1929	1930	1931	1932	1933	1934
	(millions of pesos)					
1		4,720				5,460
2	4,770	4,500	3,290	3,000	4,500	5,270
3	4,952	3,898	3,640	3,776	4,680	5,166
4	5,166	4,854	3,748	4,113	5,065	5,383
5	4,556	3,928	3,778	3,385	4,415	5,002
Average	4,861	4,380	3,614	3,568	4,665	5,256

The first approach (yield of the national capital) obviously cannot be utilized as a check on the others since the selection of a 15 percent rate of return is purely arbitrary, and errors are inherent in the evaluation of the national capital.

The second approach (evaluation of mechanical work) in reality gives the country's KWH potential converted into money values by a dubious procedure. The similarity of these estimates to those obtained by other methods cannot but be accidental. Since for 1930-34 the price per KWH of electricity is made to fluctuate with the cost of living index and in succeeding years with the wholesale price index, the national income figures in their final form reflect — with many qualifications — the potential productive capacity of the nation plus some price changes. As it is, this method can no more be used to check the others than the first.

The third method (value of goods and services) more nearly resembles those used in other countries. The results, before the adjustment for duplications, seem to give the most accurate picture of the national income of Chile. The adjustment in the value of goods and services yields an estimate that shows only the net value of goods and a fraction of services. The income flowing to those engaged in the various service activities is about one-half of total income, so that in cutting the latter by 29 percent, only a part of the value of services is accounted for.

Theoretically, the fourth method (aggregate wages and salaries paid plus the yield of capital) should not yield results too dissimilar to those obtained by the third. It covers labor income and interest on capital, which normally constitute a high proportion of national income. The estimate, however, is faulty in that the figures for agriculture, assumed constant for the period, introduce an error that must be considerable. As rents and other income items are excluded, it is not surprising that this estimate is smaller than those obtained by the third method (before the adjustment).

The fifth method (value of sales) can at best yield only approximations since the estimates of sales are very rough. Moreover, capital formation and services not embodied in commodities, including governmental services to private individuals, are omitted.

(2) *Estimates of Guillermo del Pedregal and J. N. Cifuentes, 1940-41 and 1942*²³

The estimates of Pedregal and Cifuentes are very similar in method and sources of information (Table 21). Both are based

TABLE 21

Chile

National Income, 1940-41 and 1942

SOURCE OF INCOME	PEDREGAL		CIFUENTES 1942
	1940-41 ^a	1942 (millions of pesos)	
Real property	1,435.4	3,817.5	2,332.7
Movable capital	449.7	796.1	1,276.5
Industry and commerce	1,960.6	3,900.0	2,370.9
Mining and metallurgy	1,512.6	1,175.8	1,599.6
Wages, salaries, and pensions	4,757.3	7,900.0	7,709.3
Professions	77.0	170.0	172.5
Non-recorded income ^b	1,019.3	1,775.9	..
Total national income	11,211.9	19,535.3	15,461.5

^a The estimate for 1942 contains some references to the 1941 estimate that seem to indicate that the transcribed figures have been revised. P. T. Ellsworth (*Chile, an Economy in Transition*; Macmillan, 1945) has made several minor adjustments in the 1940-41 estimate which yield a national income of 12.1 billion pesos.

^b Represents 10 percent of the recorded income.

mainly on income tax data, information from the various social security agencies, and with respect to income from real property, on official real estate valuations, adjusted to represent actual values more closely. The estimates for 1942 differ somewhat, partly because Cifuentes does not include an estimate of the income that eludes income tax and other controls. Another source of discrepancy is in the adjustments made in official figures and in the computation of total income for groups for which only the income tax actually paid is known.

(3) *Estimates of Flavian Levine*²⁴

In preparing these estimates Mr. Levine and the group under his direction utilized to the fullest extent all the available ma-

²³ Guillermo del Pedregal presented his estimate while in charge of the Ministry of Finance and on the occasion of hearings in support of the economic bill before the Chilean Chamber of Deputies (Representatives). Both estimates were made available by Herman Max of the Central Bank of Chile.

²⁴ *Renta Nacional, 1940-45* (Santiago de Chile, 1946). The study was prepared under the auspices of the Corporación de Fomento de la Producción de Chile by a group supervised by Mr. Levine. The Seminar of Econometrics, University of Chile, School of Economics, also cooperated.

terial. In addition, for sectors for which data were scarce or their validity or accuracy doubtful, they undertook special enquiries. Consequently, the supporting material is very extensive although for our purposes we can summarize the results in a few tables. Having reviewed and checked the material with that used at the IASI, we are in a better position to advance some judgment concerning the final results (Table 22).

TABLE 22
Chile
National Income, 1940-1943
Corporación de Fomento Chileno Estimate

	1940	1941	1942	1943
	(millions of pesos)			
1 Agriculture & fishing	2,923	3,299	4,136	4,745
2 Mining	1,702	1,927	2,247	2,910
3 Manufacturing	2,903	3,707	5,020	5,882
4 Building construction	332	405	440	584
5 Transportation	891	1,284	1,523	1,692
6 Public services	163	216	377	408
a Post office, telegraph, telephone & radio	86	101	178	188
b Gas, electricity, & water works	77	115	199	220
7 Trade	2,324	2,419	3,145	4,034
8 Financial services	788	800	1,042	1,175
a Banking & insurance	511	420	504	586
b Other	277	380	538	589
9 Other services	1,701	2,127	2,468	2,775
a Services rendered the public *	742	922	1,155	1,268
b Liberal professions	233	258	335	436
c Teaching	306	451	455	496
d Domestic services	296	339	345	376
e Miscellaneous	125	158	177	198
10 Investments	1,818	1,974	2,154	2,442
a Urban real estate	1,543	1,689	1,838	2,033
b Rural real estate	65	71	77	78
c Interest on internal government debt	111	110	120	154
d Interest on land mortgages	99	105	119	178
11 Government (labor payments)	1,268	1,630	1,856	2,684
12 Miscellaneous	150	200	270	320
13 Total	16,963	19,987	24,678	29,650

*Includes hotels, restaurants, beauty parlors, theaters, race tracks, real estate dealers, information and tourist bureaus, etc.

National income is defined as 'the gross value of production after deduction of costs of operation'; the latter constitute payments to other industries. Agriculture, mining, and manufacturing were estimated in accordance with the definition given above; for most other industries, the direct payments approach

was used. Even for agriculture, mining, and manufacturing the direct approach as well as the indirect was used.

The classification cannot properly be called by industrial origin since among the 'industries' there is a group called 'Rents' which gives not only rents on urban and rural real estate but also interest on land mortgages and on the internal public debt.

Governmental services are apparently valued at cost but the figure appearing under 'Government' covers only labor payments. Interest payments, as indicated, are shown as originating in 'Rents'.

The distribution by income shares is incomplete (Table 23). In every case wages, salaries (including social security payments), and entrepreneurial income were properly segregated. Profits, nevertheless, are given for only three industries (public services, trade, and financial services), while interest and rents do not appear in any industry, although the basic material shows that for some the information was available. As indicated, net income in agriculture, mining, and manufacturing was computed by subtracting payments to other industries from the gross value of production. The difference between the resulting 'net value' — contribution of the industry to national income — and the sums estimated independently as corresponding to wages, salaries, and entrepreneurial income is lumped into an item called 'surplus'. By definition this surplus must be made up of profits, interest, rents, royalties, and other income items. Consequently, it seems that 'rent' involves a pure duplication so far as it includes rural rent (computed in agriculture), interest on land mortgages (computed anywhere else), and even in part urban rents in the amount that they cover non-residential rents. Rents in manufacturing and trade alone are estimated to be approximately 200 million pesos.

The definition of net income originating in mining departs from the above inasmuch as taxes paid by foreign companies are made to appear as an income share of the industry. The procedure, although implying a change in definition can be defended, since the large taxes paid by foreign companies cannot be said to represent in any way the counterpart of services rendered by the government, as is implicitly assumed to be the case for other industries.

TABLE 23

Chile

National Income by Industry and Type, 1942
Corporación de Fomento Chileno Estimate

	TOTAL	WAGES	SALARIES	SOCIAL SECURITY PAYMENTS	ENTREP. INCOME (millions of pesos)	PROFITS	INTEREST	RENTS	SURPLUS ^a
Agriculture	4,072	1,011	220	30	1,529	b	b	b	1,283 _b
Fishing	64	b	b	b	b	b	b	b	b
Mining	2,247	677	303	79	120	120			1,069 ^c
Manufacturing	5,020	1,455	444	168	1,481	1,481			1,472
Building construction	440	286		14	140				
Transportation	1,523	772	606	21					125
Public services	377	323	d	d					
Trade	3,145	172	672	84	1,900	53			
Financial services	1,042	699	d	d		317			
Other services	2,468	572	676		1,042	343			
Investments	2,154						239	1,915	178
Government	1,856	1,856	d				b	b	b
Miscellaneous	270	b	b	b	b	b	b	b	b
Total	24,678								

^a The composition of this item in the distribution by shares is not given.

^b No distribution by shares is given.

The item arises because net income in most industries was estimated by

^c Includes 909 million pesos of taxes paid by foreign mining companies.

subtracting payments to other industries from the gross value of the

^d Included with wages.

production of the one considered, while the distributive shares were

computed independently.

(4) *Estimates prepared at the IASI*

This set of estimates was prepared by the author in Washington chiefly from information available there, which was incomplete. Even so, national income — after the necessary adjustments for differences in definition and minor arithmetical errors — does not differ by more than 10 percent from the total obtained by Mr. Levine in his more recent study.²⁵ Since the estimates prepared at the IASI go back to 1936 they are presented with the qualification that they are provisional and subject to correction.

To facilitate comparison of the two estimates, 1942 is selected. The difference in the totals is 5,047 million pesos, or a little over 20 percent of Mr. Levine's estimate. Of this difference 400 million is due to the duplication involved in 'rents' already mentioned. Another 900 million is explained by the inclusion of taxes paid by foreign mining companies, an item not included in our estimate. A further 200 million is accounted for by governmental savings, because in our estimate governmental services were valued at market prices while Mr. Levine used the cost method.

The above differences are due exclusively to divergences in concept. In matters of actual computation it is our impression that at least one industry, urban real estate, was overestimated in Mr. Levine's study. His estimate for 1942, 1,838 million pesos, is nearly 8 percent of national income. Since rents in agriculture — on the basis of reported values of urban and rural land — must amount to a similar figure, the percentage that rent constitutes of national income is obviously too high to be accepted at face value. Part of the explanation lies in the fact that Mr. Levine raised the official real estate valuations according to verbal information from real estate dealers. The figures of the Dirección General de Estadística (National Bureau of Statistics) show that actual sales were nearer the official valuations. The error on this account is at least 900 million pesos. This impression is corroborated by the estimates of del Pedregal and Cifuentes which assign to urban and rural rents a figure approximately one-half Mr. Levine's. In short, Mr. Levine's estimate seems somewhat too high. On the other

²⁵ See *Renta Nacional, 1940-45*, Vol. 2, p. 182, col. 3.

hand, our own estimate is undoubtedly too low, partly because certain items, such as profits in some industries which we were unable to estimate, were omitted.

The distribution by industries in our own estimate (Table 24) is too crude to be very useful, since for lack of data the 'miscellaneous' item includes all industries that could not be estimated separately and constitutes in 1942 nearly 18 percent of national income. This fact prevents also a comparison by industries with Mr. Levine's estimate. In general, nevertheless, whenever the industries are defined in the same fashion the estimates are as nearly similar as the deficiencies in the data allow.

E Colombia

Estimate prepared at the IASI, 1940

Except for 'agriculture', income originating in the different economic groups of Colombia has been estimated by the payments approach from 1938 Census figures on the gainfully occupied, distributed by industries; some data on average earnings; and income tax data on which are based profits in mining, manufacturing, construction, transportation, communication and public utilities, trade and finance. In reality, 'profits' are defined broadly, covering certain amounts corresponding to labor and entrepreneurial income in some industries where individuals receive income within the taxable brackets, which are so high that, normally, common labor income is excluded. Income originating in agriculture was estimated on the assumption that net income is approximately 80 percent of the gross value of production.

The contribution of government is the sum of the wages and salaries paid by the national government, the states, and the municipalities and one-half of interest payments on the public debt — the proportion corresponding roughly to the part of the public debt that is held by Colombian nationals.

The estimate of the gainfully occupied for 1940 is based on the assumption that the changes since 1938 in each economic group or industry are strictly proportional to the net increase in population (Table 25). Since the period is short, it is possible that no great changes occurred in the relative importance of each industry as measured by employment data.

TABLE 24
Chile
National Income by Industry, 1936-1942
IASI Estimates

	1936	1937	1938	1939	1940	1941	1942
	(millions of pesos at current prices)						
Total	9,122.3	10,505.0	12,061.5	11,494.9	12,953.1	15,641.9	19,630.9
Agriculture	2,048.8	2,533.4	2,781.5	2,486.3	2,721.7	2,967.0	3,751.2
Mining	641.2	716.0	811.3	879.3	921.7	1,086.9	1,129.7
Manufacturing	1,572.0	1,730.4	1,930.9	2,109.6	2,599.1	3,157.3	4,020.7
Construction	170.0	219.0	210.6	260.2	289.4	352.7	339.0
Trade	807.1	953.1	1,110.4	1,299.8	1,649.1	2,052.9	2,626.9
Transportation, communication, & public utilities	451.3	558.0	579.7	692.8	861.9	1,082.6	1,329.0
Real estate	423.0	490.0	557.0	622.0	688.0	799.0	855.0
Finance	143.0	174.7	187.5	200.9	232.4	294.7	331.6
Service (domestic)	117.5	141.6	156.1	188.8	230.9	268.0	327.0
Government	1,318.4	1,590.0	1,982.1	1,263.1	1,248.0	1,540.4	1,399.9
Miscellaneous	1,430.0	1,398.8	1,754.4	1,492.1	1,510.3	2,040.3	3,520.9

TABLE 25 Colombia
Gainfully Occupied, 1938 and 1940

	1938 Census (thousands of persons)	1940 Estimate (thousands of persons)	% OF GAINFULLY OCCUPIED
Total population	8,701.8	9,100.0	..
Total gainfully occupied	3,120.9	3,263.0	100.0
Agriculture & cattle raising	1,935.1	2,023.0	62.0
Mining	75.4	78.0	2.4
Manufacturing	442.0	463.0	14.2
Construction	85.2	88.0	2.7
Transportation, communication & public utilities	62.9	65.0	2.0
Trade	157.6	163.0	5.0
Finance	6.9	7.0	0.2
Services	107.1	111.0	3.4
Government	58.4	62.0	1.9
Other	190.3	203.0	6.2

The gross value of agricultural production was 424,697,000 pesos in 1940 (Table 26).

TABLE 26 Colombia
Agricultural Production, Gross Value, 1940

	THOUSANDS OF PESOS		THOUSANDS OF PESOS
Crop production, total	240,213	Animal production, total	59,484
Coffee, exports ^a	74,023	Slaughter of:	
Coffee, domestic consumption [*]	6,250	Cattle ^o	45,130
Corn [*]	39,157	Hogs ^o	13,543
Potatoes [*]	27,060	Sheep ^o	702
Wheat [*]	22,659	Other ^o	109
Rice [*]	19,373	Fruit and dairy production, total	125,000
Beans [*]	7,220	Fruits and vegetables ^d	55,000
Cacao [*]	6,000	Dairy products ^d	70,000
Fique [*]	3,600	Total	424,697
Cotton [*]	2,826		
Dividivi [*]	122		
Anis [*]	95		
Balsamo [*]	91		
Balata [*]	86		
Tague [*]	41		
Coconut [*]	1,000		
Sugar cane ^b	25,000		
Bananas	5,610		

^{*} Miguel Gomez Fernandez, *Tratado de Economía Colombiana*.

^a *Anuario de Comercio Exterior*, 1941.

^b Estimated on the basis of raw materials consumed by the sugar industry and the total quantities of sugar and panela produced in Colombia, according to the Ministerio de Economía Nacional.

^o Official figures of reported slaughter and average prices in 'cattle markets' (ferias).

^d Estimated on the basis of expenditures per person on these products according to 'Las Condiciones y el Costo de la Vida de la Clase Obrera en Medellin', *Anales de Economía y Estadística*, Oct. 1940. The investigation covered 201 families and 1,320 individuals.

Labor income was computed from the gainfully occupied and average earnings (Table 27). The employment figures were ad-

TABLE 27

Colombia

Gainfully Occupied, Average Earnings, and Total Labor Income, 1940

	GAINFULLY OCCUPIED	EARNINGS (pesos)	TOTAL LABOR INCOME (millions of pesos)
Mining	78,000	500 ^a	39.0
Manufacturing ^b			
Wage earners	175,000	430	75.3
Employees (salaried)	22,000	1,732	38.0
Construction ^c	88,000	400	35.0
Transportation, communication & public utilities ^d			
Wage earners	26,000	1,037	27.0
Employees (salaried)	39,000	454	18.0
Commerce ^e	163,000	1,200	195.0
Finance ^e	7,000	2,000	14.0

^a Average earnings per day are 1.84 pesos. The number of working days was assumed to be 250.

^b The income of the 266,000 managers and individual proprietors was computed from profits reported to the income tax authorities.

^c Earnings in building construction are similar to those prevailing in manufacturing, although employment is not as steady. The figure adopted, 400 pesos, is somewhat less than that for manufacturing.

^d Earnings are those for wage earners and salaried employees on Colombian railroads.

^e The figures for earnings are rather arbitrary.

justed to exclude owners and managers, whose income is estimated separately.

According to the various estimates described above, the national income of Colombia in 1940 must have been close to 1,097.6 million pesos (Table 28). 'Per capita' income was ap-

TABLE 28

Colombia

National Income, 1940

	TOTAL	LABOR INCOME	PROFITS & OTHER
	(millions of pesos)		
Agriculture	340.0		
Mining	88.5	39.0	49.5
Manufacturing	185.0	113.3	71.7
Construction	37.0	35.0	2.0
Transportation, communication & public utilities	56.7	45.0	11.7
Trade	211.0	195.0	16.0
Finance	30.0	14.0	16.2
Real estate ^a	46.1		
Government	103.3	82.9	20.4 ^b
Total national income	1,097.6		

^a See *Tratado de Economía Colombiana*.

^b One-half of interest payments on the public debt.

proximately 116 pesos a year. Income per employed person for the country as a whole was 520 pesos; in agriculture, only 168 pesos. The latter figure seems reasonable when compared with a little over 400 pesos a year made on the average by workers employed in manufacturing, for whom more accurate information exists.

F Cuba

*Estimate of Eduardo Durruthy, 1943*²⁶

Most of the information on which this estimate is based originates in income tax and other fiscal data and in figures published by a social security agency, the Workers Maternity Council (Caja de Maternidad Obrera). Other information necessary to complete the estimate comes from diverse sources not mentioned specifically.

The estimate is for income paid out and is classified by type of recipient or origin, according to the nature of the data available (Tables 29 and 30). In general, the figures seem fairly accurate and the results check with information on the value of commodity production and certain services. Some kind of check can also be made by comparing this estimate with two others on the value of production prepared by Julian Alienes Urosa and Carlos Raggi Ageo.²⁷ These, however, do not constitute national

TABLE 29
Cuba
National Income by Broad Groups, 1943

	MILLIONS OF PESOS
Profits of commercial enterprises & individuals	150.3
Wages & salaries paid by federal, state, & municipal governments	100.1
Wages & salaries paid by industry & commerce	229.2
Wages & salaries paid by agricultural enterprises	105.7
Net income from urban & rural property	82.8
Other personal income, incl. interest on loans, government bonds & other titles, but excl. dividends	37.4
National income	705.5

²⁶ Mr. Durruthy was Director General of Statistics in Cuba. His original estimate has not been published but was made available by Felipe Pazos, Commercial Attaché with the Cuban Embassy.

²⁷ *La Economía Nacional de Cuba* (Directorio Oficial de Exportación, Importación, Producción y Turismo, 1941), edited by Cuban Chamber of Commerce; and *Condiciones Económicas y Sociales de la República de Cuba* (Havana, 1944).

TABLE 30
Cuba
National Income by Minor Groups, 1943

	MILLIONS OF PESOS
Total profits of enterprises and individuals	150.3
Enterprises covered by Tariff IV and Decree Law I	74.2
Banks	1.6
Sugar refineries	9.1
Mines	0.4
Railroads	6.1
Manufacturers of liquor, tobacco, etc.	4.9
Other corporations	52.1
Business men and industrialists covered by Tariff III	49.9
Enterprises and private individuals paying other taxes	11.2
Insurance companies	3.8
Foreign navigation companies	5.0
Enterprises dedicated to credit sales	2.4
Agricultural enterprises, tax exempt	15.0
Producers of sugar cane	3.1
Producers of tobacco	3.2
Producers of coffee	1.7
Other agricultural producers	7.0
Total wages, salaries, and pensions	435.0
Government	100.1
Federal	91.2
State	1.0
Municipal	7.9
Business and industry	229.2
Agricultural enterprises	105.7
Sugar cane sector	64.1
Tobacco sector	11.0
Coffee sector	6.6
Other agricultural activities	9.0
Stock raising industry	15.0
Total other income	120.2
Interest payments	17.4
On mortgages	9.3
On other loans	1.2
On foreign securities and others not specified	2.0
90% of national debt interest payments	4.9
Professions	20.0
Income from urban and rural property	82.8

income estimates in the usual meaning of the term because they are affected by some duplications in the value of commodity production and exclude a considerable share of the value of services.

G *Dominican Republic**Estimate of the Brookings Institution, 1940²⁸*

National income is the aggregate net value of production in the various divisions of economic activity. Owing to the limitations of the data, only national income produced, classified into nine major groups, was computed (Table 31). Both cash and non-

TABLE 31
Dominican Republic
National Income, 1940

	MILLIONS OF DOLLARS	PERCENTAGE DISTRIBUTION
Agriculture	41.4	58.9
Manufacturing	7.8	11.1
Government	7.0	9.9
Trade and service	9.0	12.8
Transportation & communication	1.5	2.1
Electric light & power	0.5	0.7
Construction	0.8	1.1
Forestry, fisheries, and mining	0.9	1.3
Finance	1.5	2.1
Total	70.4	100.0
<i>Minus</i>		
Interest & dividends on foreign capital (net outflow)	1.5	
Net income produced	68.9	

cash income received in the form of goods produced and consumed on farms were included.

Certain cost items were deducted from gross income. Only in some cases were the estimates based on wage data. Cost deductions for agriculture consisted mainly of recorded imports of implements, fertilizer, and other materials, plus taxes. Trade was derived by "applying estimated incomes of merchants to the corresponding number of trade establishments, taking into consideration differences in the social status of the various groups and the probable number earning a livelihood from trade". Income originating in the service industries was derived in a similar fashion. Statistics for railroads, telegraph, telephone, and postal services are relatively satisfactory. Of the estimates, 14 percent are judged to be fully reliable, 11 percent good, 60 percent fair approximations, and 15 percent informed guesses.

²⁸ *Refugee Settlement in the Dominican Republic* (1942). This book is the result of co-operative work by several members of the Institution's staff; the chapter on Employment, Wages and National Income was written by Ellis Goodwin.

Note on the gainfully occupied. According to *Album Estadístico Grafico*, published by the Republic's Bureau of Statistics in 1944, 394,800 or 81.6 percent of the gainfully occupied in 1935 were in agriculture. In the Bureau's tabulation government employees are classified in their respective 'professions' or included in the 'ill-defined' group. A similar procedure is said to have been followed for the armed forces, the clergy, and the police. In general the figures check with other information published in official yearbooks. However, a large number of women were excluded from agriculture because of the temporary character of their occupation. The 1935 Agricultural Census reported 355.9 thousand men and 120.5 thousand women employed in agricultural pursuits. Accordingly, the estimate of the gainfully occupied was adjusted by substituting for the original agricultural employment figures those of the 1935 Census of Agriculture.

	MEN	WOMEN (thousands)	TOTAL	%
Agriculture *	355.9	120.5	476.4	84.3
Manufacturing	25.5	9.8	35.3	6.2
Transportation & communication	4.1	0.1	4.2	0.7
Trade	11.1	1.7	12.8	2.3
Professions	2.8	1.8	4.6	0.8
Other	26.9	5.2	32.1	5.7
Total gainfully occupied	426.3	139.1	565.4	100.0
% of total population			37.6	

* The figures reported in the *Album Estadístico Grafico* are 384,900 men and 9,900 women.

H Ecuador

National Bureau of Statistics Estimate ²⁹

Statistical data are such that any attempt to estimate the national income of Ecuador must necessarily be subject to very great handicaps. For example, the total population is unknown, since a complete census has never been taken.³⁰ Estimates vary widely.

In recent years several national income estimates have been made available. Apparently the first was prepared by Laso in

²⁹ *Ecuador en Cifras*, 1938-42 (Dirección Nacional de Estadística), pp. 186-93.

³⁰ General Luis T. Paz y Mino estimates 3,746,545 persons for 1941 (*La Población del Ecuador*; Quito, 1942). Luis Laso mentions 3 million for approximately the same date.

1942; another, by E. Riofrio Villagomez, appeared in 1943.³¹ The experience gained through these two estimates has been embodied in a study published in the *Yearbook of Ecuador for 1938-42*. The national wealth and national income figures do not refer to any specific year and are designated 'annual estimates' (Table 32).

TABLE 32
Ecuador
Wealth and National Income (annual estimates)

	MILLIONS OF SUQUES
National capital	5,000
Rural property (official valuation plus 60%)	1,500
Urban property	1,470
Capital placed at interest & non-productive capital	600
Capital invested in industry & commerce	500
Banking capital, including deposits	400
Cacao plantations	400
Bonds, stocks, & shares	70
Small agricultural, commercial & industrial capital, & urban property not registered	60
National income	1,500
Income of domestic servants, agricultural workers, small commercial enterprises, Indian families & workers not registered with the Social Security	725
Labor income according to Social Security data	210
Banking capital, commerce & industry & capital placed at interest	205
Rural property	200
Urban property	160

Distribution of Income

NO. OF FAMILIES (4 members)	AV. MONTHLY INCOME PER FAMILY (sucres)	AV. ANNUAL INCOME * (sucres)	TOTAL INCOME (millions of sucres)
500,000	90	1,080	540.0
200,000	200	2,400	480.0
30,000	300	3,600	108.0
10,000	500	6,000	60.0
6,000	1,000	12,000	72.0
2,000	2,500	30,000	60.0
1,000	4,000	48,000	48.0
500	8,000	96,000	48.0
300	10,000	120,000	36.0
100	15,000	180,000	18.0
70	20,000	240,000	16.8
30	30,000	360,000	10.8
750,000			1,497.6

* Not given in the original table.

³¹ Laso's estimate ('Breves Consideraciones sobre la Economia Ecuatoriana', *Boletin Mensual del Banco Central del Ecuador*, March 1942, p. 14) indicates only the number of families in the lower and higher income brackets.

Villagomez's estimate ('Algunos Datos sobre la Evolucion Financiera y Economica en el Ecuador', *Boletin Mensual del Banco Central del Ecuador*, April-May 1943, pp. 21-41), which seems to be for 1941 or 1942, gives a total national income of 1,604 million sucres.

Part of the information on which the estimate of the National Bureau of Statistics (Dirección Nacional de Estadística) is based came from a special survey of the property and income of over half a million persons taken when the National Defense Tax (Impuesto a la Defensa Nacional) was established. It is stated, nevertheless, that the results of the inquiry were deficient and that only 30 percent of those who should have declared property or income actually did so.

I Mexico

*Estimates of Emilio Alanís Patiño, 1929 and 1940*³²

Alanís Patiño's estimates for 1929-30 gave national income as 20 percent of national wealth. A new estimate of national wealth was prepared for 1940 (Table 33). On the assumption

TABLE 33
Mexico
National Wealth, 1929 and 1940

	1929	1940
	(millions of pesos)	
National wealth	10,024.5	15,342.6
Invested in:		
Primary production	4,045.5	5,562.3
Private agricultural property	2,418.5	1,776.0
Agricultural property	247.1	938.8
Livestock, poultry, and bees	753.6	973.9
Government land	46.8	52.0
Petroleum	120.7	244.3
Minerals	156.0	674.2
Other extractive industries	6.9	7.5
Electric industries	295.9	895.6
Secondary production	684.4	914.1
Manufacturing	654.4	872.1
Craftsmen	30.0	42.0
Production of services	5,294.6	8,866.0
Railroads and street cars	1,451.5	1,708.9
Private buildings not included above	1,938.8	2,631.7
Commercial enterprises	617.0	1,018.9
Other	1,287.3	3,506.5

that national income constitutes the same proportion as in 1929, Patiño states that in 1940 it must have been about 3,070 million pesos — a figure corresponding roughly with our own estimate (Table 43).

³² The 1929 estimate was published in *México en Cifras* (Secretaría de la Economía Nacional, Dirección General de Estadística, 1938), Ch. 30. The 1940 estimate appeared in *Estadística*, March and June 1943. Patiño mentions another estimate by General Abelardo Rodríguez which gives an income of 6,916 million Mexican pesos, but by all tests this figure for 1941 must be considered exaggerated.

The figure for agriculture, forestry, etc., in Table 34 is ap-

TABLE 34
Mexico
National Income, 1929

	MILLIONS OF PESOS
National income	2,042.3
Originating in:	
Primary production	684.9
Agriculture, forestry, etc.	570.1
Mining (wages & salaries only)	112.3
Hunting and fishing	2.5
Secondary production	346.0
Manufacturing	237.2
Power plants (wages & salaries only)	14.9
Craftsmen	93.9
Services	1,011.4
Public administration (expenses of federal, state, & municipal governments)	398.2
Wholesale & retail trade	258.8
Professions	84.9
Railroads & street cars	99.2
Domestic services	11.2
Business & residential real estate	80.0
Income of persons in:	
Transportation	30.4
Sea & inland transportation	7.1
Banking & insurance	2.0
Hotels, restaurants, etc.	2.3
Amusement industry	0.7
Building industry	36.8

proximately equal to the gross value of production in official yearbooks. Furthermore, as indicated under 'public administration', expenditures of state and municipal as well as federal governments, are included. On the basis of these two items, Patiño's estimate of total national income for 1929 seems to suffer from a slight upward bias.

According to official figures, agricultural production increased 59 percent in value between 1929 and 1940; mineral production 82 percent, manufacturing, 56 percent.³³ If these percentages are weighted by the contribution of each industry to national income in 1929 the composite index, according to Patiño, would rise 61 percent. National income in 1940, computed by applying this percentage to the 1929 figures, should be close to 3,288 million pesos. Another estimate, also of a very synthetic nature, is presented in Table 43.

³³ Direccion General de Estadística, *Revista de Estadística*, April 1945.

J *Panama**Estimate prepared at the IASI, 1942* ³⁴

The Republic of Panama covers 32,380 square miles of territory joining North and South America. The principal ports are Panama and Colon, where one-fourth of the 622,576 inhabitants of the country live (1940 Population Census). Most of the trade, however, goes through the Canal Zone, a strip of land five miles wide on each side of the Canal connecting the Pacific Ocean with the Caribbean Sea, with its cities, Balboa and Cristobal.

The strategic location of Panama, with the substantial transportation of goods and passengers through the Canal, brings a great deal of trade and many tourists. Still, Panama is mainly an agricultural country: over half of its active population is engaged in agriculture.³⁵ The agricultural economy of Panama nevertheless differs from that of the other Latin American countries in that it is not geared for export trade. Panama's exports are almost exclusively bananas, which normally make up over 75 percent of the total value of exports; cacao beans and coconuts make up most of the rest. Total exports are, however, very small; in 1941 — one of the best years on record — they amounted to only a little over 4 million balboas.

But the export trade does not give a complete picture of the Panamanian economy. Imports are usually five to six times larger than exports, the deficit being covered by receipts from passenger and commodity trade through the Isthmus, government receipts from rentals in the Canal Zone, import duties levied on commodities consumed partly in the Canal Zone, and wages and salaries paid in the Canal Zone to workers and employees living within Panama's jurisdiction.

For the above reasons, although Panama is essentially an agricultural country, the major part of its national income originates in trade and service activities directly connected with activities in the Canal Zone.

(1) ADEQUACY OF THE DATA. The Panamanian statistical

³⁴ In the preparation of this estimate we profited from the invaluable experience of Thomas C. Corcoran, former Director General of Statistics of Panama, as well as from the cooperation of Jose Cristobal Sanchiz of the General Bureau of Statistics.

³⁵ This percentage is based on the so-called 'civil' or 'non-Indian' population only. In 1940, 55,987 Indians, 9 percent of the total population, lived in tribal units.

data are going through a transitional period. Since 1940, when a new and excellent population census was taken, the General Bureau of Statistics (Dirección General de Estadística) has been widening the range and raising the quality of its published material. Nevertheless, the information is still too limited to permit more than a rough appraisal of the probable magnitude of national income. An agricultural census was taken in 1942, but proved to be of such small value that in 1943 a new census, covering only the District of Penonome in the Province of Coclé, was undertaken. Only some results of the latter have been published.

As for periodic data, the General Bureau of Statistics published production figures for a few agricultural and manufacturing products, some public finance, foreign trade, railroad transportation, and building construction. Price data are confined to retail prices of food and clothing in the City of Panama, where conditions are considerably better than in the interior of the country. Owing to this lack of price data, the evaluation of the agricultural and industrial production in balboas is quite unsatisfactory.

(2) GAINFULLY OCCUPIED. In 1940 Panama had a population of 622,576, of whom 55,987 were Indians living in settlements and Indian villages. Of the 'non-Indian' population 25.5 percent was concentrated in Panama City and Colon, the former having 112,000 persons (19.7 percent). Of the total population, excluding Indians living in tribes, 36.3 percent were gainfully occupied; and of these, 52.3 percent, according to the Census of 1940, were in agriculture (Table 35).

TABLE 35
Panama
Gainfully Occupied (excluding tribal Indians), 1940

	NUMBER	% OF GAINFULLY OCCUPIED
Agriculture	107,680	52.3
Extractive industries	373	0.2
Manufacturing	14,596	7.1
Construction	8,136	4.0
Transportation & communication	4,433	2.2
Commerce	10,344	5.0
Personal services	19,428	9.4
Public services & professions	10,461	5.1
Employees in Canal Zone	28,049	13.6
Unknown	2,259	1.1
Total	205,759	100.0

(3) PROBABLE SIZE OF THE NATIONAL INCOME. The statistical data and other information available, as stated above, are such that the national income of Panama can be only roughly estimated. All indications seem to point, however, to a figure of 78.9 million balboas in 1942, excluding whatever income should be imputed to the 9 percent of the population living in Indian tribes under a purely non-cash economy. Still, a part of the above amount is made up of non-cash income accruing to the agricultural part of the so-called 'non-Indian' or 'civil' population. Of the 78.9 million balboas, agriculture contributes 22.1 million; manufacturing, 7.5 million; building construction, 1.2 million; government, 12.9 million; the Canal Zone, 10.2 million; and other groups, 25 million.

On the basis of 80 million balboas for national income in 1942, income per capita is 143 balboas a year, or approximately 400 balboas per gainfully occupied. Income per gainfully occupied person in agriculture does not seem to exceed 220 balboas a year, while in government it is as high as 1,000 balboas.

Agriculture. The share of the national income accruing to agriculture was estimated by evaluating agricultural production in 1942 at the retail prices prevailing in Panama City (Table 36). For a small group of fruits and vegetables it was

TABLE 36
Panama
Agricultural Production, Approximate Retail Price Value, 1942

	UNIT	QUANTITY ^a	PRICE ^b	VALUE (thousands of balboas)
Brown rice	qq (100 lbs.)	1,356,892	9.00	12,212
Corn	qq	777,347	3.75	2,915
Beans	qq	63,033	15.00	945
Potatoes	qq	17,509	9.00	158
Yuca	qq	1,183,506	5.00	592
Name	qq	483,834	7.50	3,629
Plantains	matas de 100	4,048,453	2.21	8,947
Sugar cane syrup	lbs.	6,691,956	0.05	335
Brown sugar	lbs.	2,238,481	0.05	112
Fresh milk	1,000 cans	25,234	80.00	2,019
Eggs	1,000 doz.	4,740		3,792
Beef	Head	58,364 ^c	d	5,346
Pork	Head	59,084 ^c	d	1,683
Rubber	lbs.			24 ^c
Total				42,709

^a Official figures of the Agricultural Census of 1942, some of which are estimates.

^b Balboas per unit; see *Estadística Panameña*.

^c Estimated.

^d Prices are per pound 'on the hoof'.

^e Value of exports in 1942.

possible to obtain both prices in Panama City and prices paid to farmers. The relation between these prices was applied to the total value of agricultural production at retail prices to yield an approximation of the part of gross agricultural production accruing to farmers. The estimate was increased by 5.9 million balboas to account for the net value of fruits and vegetables not included in the 1942 Agricultural Census and by 50 percent of the value of exports of bananas and cacao beans.

It is difficult to give exactly the margin or difference between prices prevailing in Panama City and those paid to farmers. An idea, however, can be obtained by comparing the minimum prices paid farmers by the Food Supply Division of the Institute of Inter-American Affairs with retail prices in Panama City, which are comparable for six products (Table 37).

TABLE 37
Panama
Relation between Prices Paid Producers and Retail Prices

UNIT	RETAIL PRICES IN PANAMA ^a		PRICES PAID PRODUCERS ^b	(2) AS % OF (1)
	(1)	(2)		
		(cents of balboas)		
Carrots	lb.	15.0	4.0	26.7
Cabbage	lb.	15.3	4.0	26.1
Chayote	lb.	5.0	2.0	40.0
Tomatoes	lb.	15.0	5.0	33.3
String beans	lb.	15.0	5.0	33.3
Oranges	unit	3.7	1.5	40.5

^a Average of July–August 1944.

^b Prices paid by the Institute of Inter-American Affairs, Food Supply Division, August 1943 to July 1944. As prices remained quite stable, the comparison is not unduly affected by the difference in dates.

If it is assumed that the ratio of prices paid to farmers by the IIAA to retail prices in Panama City, i.e., roughly .40, applied generally to agricultural production, the value would have been about 17 million balboas in 1942, made up of cash income from actual sales and income in kind, i.e., consumption at the farm of part of the production. Farm income from staple production is perhaps larger since it probably should be increased by the value of transportation, which quite often is undertaken by the farmers.

The net value of fruit and vegetable production is estimated to be 3 million balboas, or approximately 15 percent of the net value of all other agricultural products. In addition, agricul-

tural income must be increased by net income originating in the production of bananas and cacao, 1.8 and 0.3 million balboas respectively. The net value of the production accruing to farmers is estimated to be one-half of the reported export value.

In sum, the net value of agricultural production, or net income accruing to farmers — in cash and kind — is 22.1 million balboas consisting of income from (a) the production of large crops, 17 million balboas; (b) the production of fruits and vegetables, 3 million balboas; (c) exports of bananas and cacao, 2.1 million balboas.

Manufacturing. According to the 1940 Population Census, 14,596 persons or 7.1 percent of the gainfully occupied were employed in manufacturing. The beverage (liquor and beer) and food processing industries have the largest capital investments. The industries listed in Table 38 employ only 5,739

TABLE 38

Panama

Summary Data on Principal Manufacturing Industries, 1942

	EMPLOYMENT	CAPITAL INVESTMENT	OUTPUT
		(thousands of balboas)	
Soft drinks	760	3,795.6	1,130.7
Sugar	1,535	1,595.0	1,769.0
Miscellaneous foods	523	1,473.5	1,186.0
Clothing	724	874.8	1,401.0
Ceramic products	678	772.6	956.0
Printing	411	595.0	1,090.0
Furniture	442	503.2	1,214.0
Shoes	351	468.0	1,254.0
Soap	121	133.0	729.0
Mattresses and pillows	55	54.0	276.0
Miscellaneous	139	243.3	417.0
Total	5,739	10,508.0	11,422.7

Mining and Manufacturing Industries in Panama, one of a series of reports on mining and manufacturing in the American Republics (United States Tariff Commission, Feb. 1944). The value of production assigned to the sugar industry is not given, but was estimated by applying prices to production figures from *Estadística Panameña*.

persons; the approximately 9,000 persons not shown in the table are employed in the alcoholic and beverage industry (about 1,500), in small establishments, or as individual workers. The value of production created by these individuals and firms is practically impossible to estimate. If productivity per employed were similar to the average for the firms and industries for which there are data, the total value of industrial pro-

duction would be close to 30 million balboas. Of this amount, probably one-fourth (7.5 million balboas) is constituted by wages and salaries and other income items.

Building construction. The gross value of building construction in Panama City and Colon in 1942 was 2.6 million balboas. Since, according to the Population Census of 1940, employment in the building construction industry in these two cities constitutes 67 percent of total employment in the country for this industry, it is estimated that the total value of building construction must have been approximately 4 million balboas in 1942. For the purposes of this estimate, it was assumed that 30 percent of this gross value (1.2 million balboas) must have been contributed by wages, salaries, and other income items.

Government. Governmental expenditures during the two years January 1941–December 1942 were 37,660,200 balboas, of which 23,607,300 or 62.7 percent are represented by wages, salaries, pensions, rents, and other payments to individuals (Table 39). Since the budget is prepared for two-year periods it

TABLE 39
Panama
Government Expenditures, 1941–1942

	TOTAL	WAGES, SALARIES, PENSIONS, ETC.
	(thousands of balboas)	
Government and justice	7,441.9	5,541.5
Foreign relations	992.2	925.0
Finance and treasury	2,489.9	1,336.6
Education	5,648.3	4,881.3
Health and public works	14,068.2	10,309.9
Agriculture and commerce	979.4	359.7
Comptrollership	334.1	252.3
Foreign debt	1,960.0	..
Internal debt	3,327.0	..
Other	419.2	..
Total	37,660.2	23,607.3
1942 (54.2% of Total)		12,800.0
Interest on internal debt		87.2
Total government contribution to national income		12,887.2

is difficult to separate exactly the part of the payments to individuals that is for a single year. Total actual expenditures in 1942, however, were 54.2 percent of expenditures during 1941–42. Accordingly, payments to individuals must have been close to 12.8 million balboas. In addition, 174.4 thousand balboas

were paid out as interest on the internal debt. Approximately half was for 1942.

Employees in the Canal Zone. In 1940 the United States government employed 28 thousand Panamanians in the Canal Zone — approximately 3,000 on the so-called 'gold roll'; 25,000, on the 'silver roll'. Conditions of employment differ in the two rolls; those on the silver roll had average earnings of 51 balboas a month, or 612 for the year; those on the gold roll, about 100 a month, or 1,200 for the year. Changes in average earnings between 1940 and 1942 were apparently very small, but total employment increased approximately one-fourth. Not all the income accruing to these Panamanians in the Canal Zone constitutes income for Panama. It is estimated that about 60 percent of the wages and salaries are spent within the Canal Zone on the purchase of food, clothing, and other supplies from the United States Commissaries and Post Exchanges. Accordingly, income actually accruing to Panama from the employment of its citizens in the Canal Zone must have been 10.2 million balboas in 1942.

	MILLIONS OF BALBOAS
34,000 employees at B/51 (silver roll)	20.8
4,000 employees at B/100 (gold roll)	4.8
Total salaries of Panamanians in the Canal Zone	25.6
Part remaining in Panama (40% of Total)	10.2

Other economic sectors. The economic sectors whose contribution to the national income of Panama has been estimated in one way or another employed approximately 185.4 thousand persons in 1940: 107.7 thousand in agriculture, 14.6 thousand in manufacturing, 8.1 thousand in construction, approximately 13 thousand in government, and 42 thousand in the Canal Zone.

The difference between the 227 thousand estimated as the gainfully occupied in 1942 ³⁶ and this total represents those employed in the extractive industries, transportation, communication, commerce, personal service, and other. Information on average earnings for these groups is very limited. Apparently

³⁶ Estimated by assuming that the gainfully occupied would constitute the same percentage of total population as in 1940. Total population was estimated by assuming that the growth after 1940 would have been at the same rate as during 1930-40, i.e., between the last two censuses. Since the 1930 Census was defective in recording the Indian population, the latter was also excluded from the 1940 Census results.

the only data available come from the Social Security Fund (Caja de Seguro Social), which covers approximately 40,000 workers and employees in government activities, trade, manufacturing, and other. For July 1943–June 1944 the Caja has published the average wages and salaries of members who received insurance or hospital benefits. The sample covers 12,829 of whom 7,811 are men, earning on the average 83 balboas a month, and 5,018 women, earning on the average 59 balboas a month. If these earnings are weighted by the number of men and women who according to the 1940 Census were engaged in all kinds of pursuits except agriculture, the average earnings of the two sexes together are 76 balboas a month.

It is difficult to tell whether this average is representative for wage earners in other economic sectors. Workers with the lowest average earnings probably utilize health and insurance benefits more than others. On the other hand, the Caja covers mainly workers and employees in Panama City and Colon, where earnings are usually higher than in the rest of the country. The inclusion of government employees in the sample may also affect the average. As was shown in the discussion on government, total wage-salary payments to the approximately 13,000 government employees in 1942 amounted to 12.8 million balboas. Per capita income in government is then 82 balboas a month, i.e., slightly higher than that for the Caja sample. Consequently, it was decided to adopt the figure of 50 balboas a month or 600 a year as average earnings of the 42 thousand odd persons in the group employed in 'other economic sectors'. Accordingly, their income must have been close to 25 million balboas in 1942.

K Perú

Estimate of Emilio G. Barreto, 1942

No estimate of Peruvian national income except that by Emilio G. Barreto (unpublished) exists (Table 40). Previous attempts succeeded in elaborating partial estimates of gross or net values for only some of the most important sectors of the economy. Among them are an estimate of the value of agricultural production by Ing. Romulo Ferrero and a national income estimate (incomplete) published in 1938 by the Commercial Department of the Ministry of Foreign Affairs (Official Publication 9).

TABLE 40
Peru
National Income, 1942

	MILLIONS OF SOLES
Agriculture	666.2
Mining	284.7
Manufacturing, incl. household industries	280.3
Services (transportation, construction, radio, newspapers, electricity, gas, hotels, etc.)	306.8
Professional services	12.0
Trade (wholesale and retail)	213.0
Finance (banking and insurance)	80.8
Government	
Industrial and trade activities	50.4
Services	140.0
Miscellaneous	50.7
Total	2,085.1
<i>Minus</i>	
Duplications	41.7
Total national income	2,043.4

Dr. Barreto was able to use the 1940 Population Census as well as a considerable amount of other official information, some unpublished. Consequently, his estimate, although necessarily preliminary, is based upon more and better data than is usually the case for countries at a similar stage of statistical development.

The concepts underlying the estimate are the usual ones and the net contribution of each economic group is equal to the sums earned by the productive factors engaged, whether such sums are paid out or not. The only important difference between his estimate and those for most other countries is the exclusion of agricultural production consumed by the household. Dr. Barreto suggests that approximately 40 percent of the total production of the Indian communities in the Highlands (Sierra) is for home consumption. He excludes this sum on the ground that these Indian communities are in reality outside the economic life of the country. No sum seems to have been assigned for rents of buildings occupied by their owners.

L Venezuela
IASI Estimate, 1936

A rough industrial distribution of its population indicates that Venezuela is primarily an agricultural country. Although no

investigation of the size and distribution of the gainfully occupied was made in the 1936 Population Census, it has been estimated that 85–90 percent of the active population was engaged in agricultural or pastoral pursuits. Total population in 1936 was 3.4 million persons, of whom perhaps 1 million, or 32 percent, were in the active group.³⁷ Of these, 56,000 were employed in manufacturing; 14,000 in the petroleum industry (extraction and refining); 43,000 in trade; and 15,000 in the various service industries.³⁸ Apparently no figures are available on employment in government, but in view of the size of the budget and the probable average wage-salary payments, it would seem that about 25,000 persons were employed by central and municipal agencies. Accordingly, close to 850,000 persons must have been employed in agricultural and pastoral pursuits. But despite their extraordinary importance as far as employment is concerned, the share accruing to those engaged in them does not exceed one-half of the national income. Income per employed in agriculture was about 600 bolivars in 1936; in manufacturing, 2,000; and in trade and services, 3,000–4,000. Average per capita income is about 324 bolivars a year.³⁹

Data in censuses taken during 1936 and 1937 (population, agriculture, manufacturing, trade, and services) facilitated considerably the task of estimating the approximate national income (Table 41). The estimate was prepared from information from these censuses published in the statistical yearbooks of Venezuela for 1938, 1940, 1942, and 1943, and some figures on the petroleum industry in *Estadística del Petróleo* for 1936, 1937, and 1938.

Practically all the items that make up the estimate, therefore, were taken directly from the various censuses. The only exceptions are agriculture, gold, diamond and coal mining, and government.

³⁷ Based on the percentages obtained for the Federal District and the State of Anzoátegui, for which the results of the 1941 Census — which investigated the gainfully occupied — have been published.

³⁸ Census of Service Industries, which covers (a) hotels and restaurants; (b) personal services and amusements; (c) transportation, communication, and other services; (d) banks and insurance; (e) other. Employment figures in manufacturing, trade, and service industries include owners, estimated to be 1 per establishment.

³⁹ The cost of living in large cities (see *Investigación sobre el Costo de la Vida en Caracas*, Ministerio de Fomento, 1940) is much higher than in rural areas. The range in average earnings between different provinces shows a similar difference.

TABLE 41
Venezuela
National Income, Provisional Estimate, 1936

	TOTAL	WAGES & SALARIES	PROFITS, WAGES, & ENTREP. INCOME	RENT
	500.0	173.5	278.8	47.7
Agriculture				
Mining	81.4	81.4		
Petroleum	57.4	57.4		
Gold, diamonds, & coal	24.0	24.0		
Manufacturing	111.4	63.6	47.8	
Food industries	41.3	23.6	17.7	
Textiles	16.0	9.6	6.4	
Printing	6.7	4.8	1.9	
Leather	10.0	6.1	3.9	
Stone, clay, & glass	5.0	3.3	1.7	
Wood	6.2	3.3	2.9	
Other	26.2	12.9	13.3	
Trade	125.1	39.9	72.3	12.9
Food & beverages	59.3	14.8	37.7	6.8
Clothing	25.6	7.6	15.6	2.4
Medicinal & chemical products	6.1	4.0	1.4	0.7
Other	34.1	13.5	17.6	3.0
Services	64.0	26.9	33.8	3.6
Hotels & restaurants	5.9	1.6	3.1	1.2
Personal services & amusements	20.5	5.5	13.6	1.4
Transportation, communication & other	22.4	14.9	7.1	0.4
Banks & insurance	11.1	3.1	7.8	0.2
Other	4.4	1.8	2.2	0.4
Government	215.0	215.0	..	..
Total	1,097.2	600.3	432.7	64.2

All data for manufacturing, trade, services and mining (oil) are from censuses taken in 1936. Agriculture is partly estimated from data in the 1937 Agricultural Census. Rents in agriculture were assumed to be 5 percent of the value of exploited land. Gold, diamond, and coal figures are 80 percent of the official gross value of production. Income originating in government is 80 percent of total federal and municipal expenditures.

* One bolivar is worth 30 American cents.

The 1937 Census of Agriculture reported the cash value of sales of agricultural products, 245.0 million bolivars, and the amounts paid in wages and salaries, 173.5 million. As consumption *in situ* must be important, it was estimated by applying the average prices obtained in actual sales to the total quantities produced as recorded in the Census. It was possible to ascertain the prices of practically all the major products reported. The gross value of production so computed is very close to 600 million bolivars, of which 500 (approximately 80 percent) was considered net income.

'Net income from gold, diamonds and coal' was computed simply by taking 80 percent of the official value of production. There is no information permitting an appraisal of the cost items that do not constitute income.

As it was impossible to obtain a detailed budget for government, it was assumed that approximately 80 percent of total expenditures must have been wage-salary payments. There are no interest payments, since Venezuela's internal debt is negligible.

The contribution of the mining, manufacturing, trade, and service industries is made up of wages and salaries, profits, and rents. The censuses do not indicate whether the amounts are those actually paid out. Profits are defined very broadly, including not only profits in the stricter sense but also entrepreneurial income and interest payments. Rents from residential real estate were not computed owing to lack of data. The only important item missing besides rents is profits in the mining industry (oil), but the fact that most oil is exploited by foreign companies makes its estimation unnecessary.

*M Estimates Prepared at the IASI for
Two Groups of Countries*

In the preceding pages about a score of national income estimates for twelve Latin American countries have been reviewed. In most cases the data on which they are based, although inadequate, have permitted at least an appraisal of national income divided into its chief components. For a few countries, however, the estimates are either unreliable or are for years too long before 1940 to be valid for today. The eight countries omitted may be classified into two groups. The first, covering Uruguay, Paraguay, El Salvador, and Honduras, includes countries for which information is confined to data on agricultural production, extractive industries, manufacturing, and building construction. Whatever information exists in these countries regarding trade, transportation, communication, and other service industries is too scattered and incomplete to be useful. Statistics for the second group of countries — Guatemala, Costa Rica, Nicaragua, and Haiti — are definitely inadequate for estimating national income.

A simplified type of estimate, providing information only on the commodity-producing industries, was prepared for the first group. Either as a check on the method or because the available estimates are not for recent years, Cuba, Mexico, Brazil, and Argentina were included. Briefly, the method consisted of estimating the net income originating in all the industries directly engaged in producing commodities, i.e., agriculture, extractive industries, manufacturing, and building construction. Once this share of national income had been computed, it was assumed that it would be a function of total national income, dependent on the share of total employment provided by these industries.

Even on *a priori* grounds, it would seem that there must be a certain definite relation between income created through the production of commodities and national income. It is known that the productivity of the service industries — as measured by per capita returns to production factors — is normally much greater than that of the primary and secondary.⁴⁰ Still it cannot but be dependent upon the productivity of the latter. This explains why a relatively large proportion of the population (over 40 percent) of countries that have a highly developed manufacturing industry, e.g., the United States and Great Britain, or a modern and efficient agriculture, e.g., New Zealand, Australia, Canada, or Argentina, are engaged in all types of service industries. For the same reason in countries where agriculture is primitive and industrial development not far advanced, the number engaged in the commodity-producing industries is very large, and the number in the service industries correlatively small. But in these countries, as in the more developed, the per capita share (productivity) of the population engaged in the service industries is also considerably larger than in the primary and secondary. However, despite the favorable position of the service industries, no shifts of population to them from the primary and secondary can occur unless preceded by a rise in the productivity of the commodity-producing industries, for a community will obviously not be in a position to pay for serv-

⁴⁰ Primary industries as defined here include not only agriculture but also extractive industries such as mining. Since mining in Latin America is often confined to the extraction of ore, it seemed better to put such industries in the primary rather than in the secondary group, which includes properly manufacturing and building construction.

ices until it produces something over and above bare necessities.⁴¹

Statistical information on which to base an analysis of the relative share of income accruing to the service industries in Latin American countries is unfortunately very scarce. Of all the national income estimates reviewed, only six — those for Argentina, Chile, Colombia, the Dominican Republic, Venezuela, and Peru — are classified by industrial source and give comparable data on the gainfully occupied. These few countries represent, nevertheless, rather extreme conditions in the general Latin American economic picture since they are examples of relatively developed and undeveloped countries.

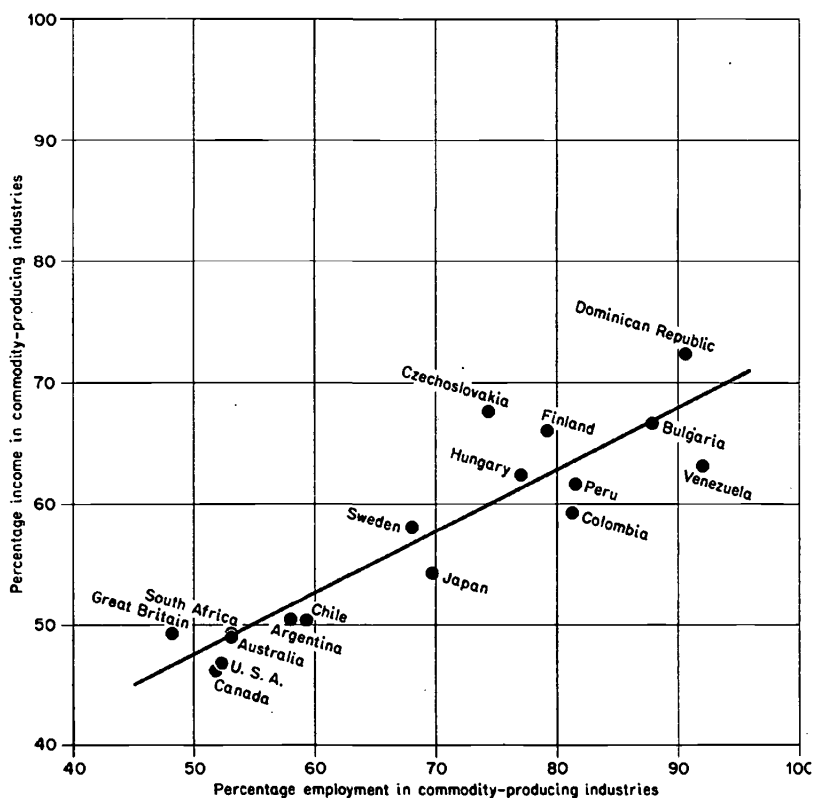
For these, together with eleven other American, European, and Asiatic countries, the ratio of income originating in commodity-producing industries to total national income was computed and the respective percentages correlated with percentages showing the proportion of employment provided by the same groups in comparison with total employment (see Table 42 and the chart). The regression line of the chart shows a high degree of correlation ($r = .90$) between the two factors analyzed, i.e., income and employment in primary and secondary activities and total income and employment.⁴² The six Latin American countries follow one pattern; indeed, the pattern is fairly general for practically every country for which figures are available.⁴³

⁴¹ Colin Clark in his *Conditions of Economic Progress* (Macmillan, London, 1940) deals at length with the factors affecting the productivity of the various industries and their influence on the level of national income, but in the end seems to assume that the productivity of the service industries is in some way independent of that of the primary and secondary. He asserts that "varying levels of tertiary productivity are among the most important factors that determine the average level of real income in countries as a whole" (p. 319). However, in countries where a greater proportion of the inhabitants are engaged in tertiary industries — the United States, New Zealand, Australia, and Great Britain — productivity in either the primary or secondary industries, or in both, is extremely high, according to Clark.

⁴² The significance of the correlation coefficient, as tested by the method suggested by R. A. Fisher, shows that the probability of this coefficient's being exceeded by chance alone is less than .001.

⁴³ National income estimates for two other countries, The Netherlands and Turkey, could have been used but they deviated so much from the pattern of the seventeen countries that it became obvious that either the estimates themselves or the figures on the gainfully occupied were subject to considerable margins of error.

**Correlation between Income and Employment
in Commodity-producing Industries
Seventeen Countries**



On the basis of the above evidence, it would appear that the absolute share of those engaged in the production of commodities increases arithmetically or in a fixed proportion with employment. Relatively, however, the increase in employment is faster than in income. This could be interpreted as indicating that per capita income in commodity-producing industries is proportionately smaller the larger the number of persons engaged in them. The order in which the countries cluster around the regression line as relative employment in primary and secondary industries increases (or as employment in service industries diminishes) is roughly similar to their order if ranked according to decreasing per capita income levels. In the chart the countries having higher employment in commodity-produc-

ing industries are those where real per capita income is probably smaller.

The relation obtained by the procedure described above was applied in estimating the proportion of income in tertiary activities for the group of countries for which income in commodity-producing industries only had been computed. The share of the service industries was based on the gainfully occupied (Table 42).⁴⁴

As indicated previously, statistical information for these countries is meager and it has been impossible to determine directly the part of the gross value of production that constitutes net income. Consequently, 'net income' is assumed to be a fixed percentage of gross. For agriculture the figure selected was 80 percent, which accords with information available for other Latin American countries, such as Chile and Argentina. This percentage is higher than in the United States, but it must be remembered that in general agriculture in Latin America is not as mechanized as in the United States and that frequently certain services, such as transportation, create in reality agricultural incomes since they are undertaken by rural populations engaged also in agriculture. In manufacturing, the proportion selected was 30 percent, which is fairly stable, as can be ascertained by observing industrial data for the various countries. In mining, 60 percent was chosen, somewhat arbitrarily. Here there may be wider variations between countries according to the type of product mined, but, except in Mexico, the industry is relatively unimportant, so the error cannot be very large.

The results of applying the above method can be tested roughly by the national income figures for Argentina, Brazil, Cuba, and Mexico (Table 43). For the first, 7,936 million pesos for 1940 checks rather well with the 9,494 million given by the Ministry of Finance for 1941, if allowance is made for the fact that between these two years wholesale prices rose 17.4 percent. The estimate for Brazil (33.1 million contos) is lower than that of the Bank of Brazil but higher than that of Sr. Bulhoes. The estimate for Cuba (651 million pesos) agrees with the one pre-

⁴⁴ The equation of the regression line showing the proportion of total national income corresponding to a given percentage of employment in commodity-producing industries is $Y = 22.2 + .51X$, where Y is the percentage of income and X the percentage of employment.

TABLE 42

Seventeen Countries Total Income and Employment, Main Industrial Groups

	INCOME		EMPLOYMENT		% OF INCOME IN COMMODITY- PRODUCING INDUSTRIES	% OF EM- PLOYMENT IN COMMODITY- PRODUCING INDUSTRIES
	Total (millions of the national currency)	Commodity- producing industries	Service industries	Total (thousands)		
Argentina, 1941	10,789	4,904	5,885	5,000	2,900	2,100
Dominican Republic, 1940	70	51	19	565	512	53
Colombia, 1940	1,098	651	447	3,263	2,652	611
Chile, 1940	12,953	6,532	6,421	1,713	1,015	702
Venezuela, 1936	1,097	693	404	1,000	920	58
Peru, 1940 ^a	2,043	1,261	782	2,475	2,017	458
Australia, 1933 ^b	584	286	298	2,870	1,523	1,347
Bulgaria, 1934 ^b	34,564	23,037	11,527	3,433	3,019	414
Canada, 1940 ^c	5,689	2,629	3,060	4,446	2,302	2,144
Czechoslovakia, 1929 ^d	96,000	65,000	31,000	6,992	5,204	1,788
Finland, 1930 ^b	18,000	11,900	4,700	1,715	1,359	356
Great Britain, 1930 ^e	3,289	1,622	1,667	18,455	8,888	9,567
Hungary, 1930 ^b	4,902	3,063	1,839	3,830	2,954	876
Japan, 1930 ^b	10,700	5,806	4,994	29,620	20,638	8,982
South Africa, 1936-7 ^f	369	182	187	705 ^g	374	331
Sweden, 1930 ^g	8,323	4,837	3,486	2,892 ^h	1,968	924
United States, 1919 ^h	67,854	31,737	36,117	39,818	20,825	18,993

^a Income figures are for 1942. Population figures are from the 1940 Census.

^b Income figures are from 'The National Income of Principal Foreign Countries', *Economic Record*, Aug. 3, 1939 (National Industrial Conference Board); employment figures are from *Yearbook of Labour Statistics, 1941* (International Labour Office). Both income and employment are for the same year.

^c *Canada Yearbook, 1943-44*, pp. 800 and 1,067. Income figures are before adjustment for dividends and interest transferred abroad.

^d Income figures are from the Monthly Report of the National Bank for

Bohemia and Moravia, No. 155, 1939; employment figures from the *Yearbook of Labour Statistics, 1941*.

^e Colin Clark, *National Income and Outlay* (Macmillan, London, 1937), p. 238.

^f *South African Journal of Economics*, June 1944.

^g E. Lindahl, *et al.*, *National Income of Sweden, 1861-1930*, I, 237.

^h Simon Kuznets, *National Income and Its Composition, 1919-1938* (National Bureau of Economic Research, 1941) I, 326 and 346.

ⁱ *Yearbook of Labour Statistics, 1941*.

TABLE 43
Eight Latin American Countries
Estimated National Income

	EL SALVADOR 1940	HONDURAS 1941-42	PARAGUAY 1940	URUGUAY 1940	ARGENTINA 1940	BRAZIL 1940	CUBA 1942	MEXICO 1940
Gross value								
Agriculture	67.3	42.1	57.0	138.7	2,900	17,532	299	1,409
Extractive industries	^b	^b	^b	^b	320	688	21	847
Mfg. and construction			30.7	382.0	5,330	19,200	388	1,384
Net value								
Agriculture	53.8	33.7	45.6	111.0	2,320	14,025	239	1,127
Extractive industries	^b	^b	^b	^b	192	413	13	508
Mfg. and construction	15.3	15.0	9.2	114.6	1,599	5,760	116	415
National income								
Commodity-producing industries	69.1	48.7	54.8	225.6	4,111	20,198	368	2,050
Services ^a	41.9	28.3	29.2	210.4	3,819	12,913	283	1,094
Total	111.0	77.0	84.0	436.0	7,936	33,111	651	3,144
Employment & income in commodity-producing industries as % of total								
Employment	78.1	80.7	85.0	58.1	58.0	76.1	67.3	84.4
Income ^a	62.0	63.4	65.6	51.8	51.8	61.0	56.5	65.2

Estimated by using the regression line $Y = 22.2 + .51X$.

^b Extractive industries are included with manufacturing.

pared by Sr. Durruthy for 1943. The increase in national income between 1942 and 1943 must be approximately 10 percent, as shown by the rise in total retail sales. If the same index (volume of sales) is applied to either the 1942 or 1943 estimate to calculate the national income of Cuba in 1940, the resulting figure is 488 million pesos. Finally, the estimate for Mexico agrees closely with the figure given by Ing. Alanís Patiño for 1939, since only slight changes in prices occurred between the two years.

Table 44 summarizes all the national income estimates presented for 1940, or when not possible for this year, for the nearest year.

NOTES TO TABLE 43

El Salvador

According to the 1930 Population Census, approximately 73 percent of the gainfully occupied were engaged in agriculture, 5.1 percent in manufacturing and construction, and 4.0 percent in trade. These figures are approximate because the Census classified the population by occupational activities, not by industrial groups. Two large groups (women in domestic occupations and persons without professions, including children) were subtracted from total population, although some of them were probably in the labor force.

The value of agricultural production was based on the quantity production and prices of nineteen products, published by the General Bureau of Statistics (Dirección General de Estadística) in the *1942 Yearbook*. These products apparently cover all agricultural production (*Estadística Forestal y Agraria, 1943*). Coverage with respect to the cultivation of foodstuffs is then complete. Fruits and lumber and a few exportable products not included among the nineteen were estimated separately to be one-fifth of the value of the known products (Table A). As figures on the value of manufacturing production are unavailable, net values were based on employment and average income; the latter was assumed to be three times as large as in agriculture.

TABLE A
El Salvador
Agricultural Production, Gross Value, 1940

	MILLIONS OF COLONS
Coffee	23.4
Sugar	9.4
Corn	7.9
Maicillo	3.2
Rice	2.2
Beans	2.6
Balsamo	0.8
Cattle, slaughtered	2.0
Hogs, slaughtered	3.2
Other livestock and poultry	0.6
Other products (5)	0.8
Fruits and other products (20% of recorded production)	11.2
Gross value	67.3

Honduras

According to the 1940 Population Census, 73 percent of the gainfully occupied (379,400 persons) were engaged in agricultural pursuits and extractive industries; 7.7 percent (29,200 persons) in manufacturing. The gross value of agricultural production is estimated to be 42.1 million lempiras (Table B). As figures on the value of manufacturing production are unavailable, net values were based on employment and average income; the latter was assumed to be three times as large as in agriculture.

TABLE B
Honduras
Agricultural Production, Gross Value, 1941-42

	THOUSANDS OF LEMPIRAS
Total crops	27,959.0
Bananas	8,859.6
Corn	6,525.6
Coffee	3,142.0
Beans	1,525.0
Maicillo	1,441.9
Rice	1,089.9
Guineos	933.4
Plantains	792.7
Yuca	611.9
Mangoes	483.7
Tobacco	402.1
Aguacates	351.2
Other products	1,800.0
Total animal products	14,113.5
Poultry and eggs	3,790.0
Dairy products	5,380.0
Other animal products	2,810.0
Cattle, slaughtered	1,160.0
Hogs, slaughtered	973.5
Gross value	42,072.5

Informe de los Actos Realizados por el Poder Ejecutivo Nacional, Año Fiscal, 1942-43.

Paraguay

The population of Paraguay in 1940 is estimated to be 1,015,000 persons. As no census has been taken since 1886, little or nothing is known about its probable distribution by industries or activities. Apparently the coverage of Table C is relatively complete. The value of agricultural production has not been estimated since 1938. Raising the 1937-38 estimate for 18 important agricultural products, 45 million guaranies, 5 percent to take into account changes in acreage and prices, yields an estimate of 46.5 million guaranies for 1940. The estimate for milk, eggs, and poultry is based on consumption in Asuncion (105,000 inhabitants) in 1940.

TABLE C
Paraguay
Commodity Production, Total Value

	MILLIONS OF GUARANIES
Production, 18 important agricultural products	46.5
Milk, eggs, and poultry	.8
Exports of forest products, excluding tanino and petit-grain essence, 1940	.5
Cattle slaughtered, 1942 (350,517 heads at 26 guaranies each)	9.2
Manufacturing production, 1940 (Ministry of Industry and Commerce)	30.7

Uruguay

Since the last census was taken in 1908, there are no recent figures on the size and distribution of the gainfully occupied. Using information from the Agricultural Census of 1937 and the Industrial Census of 1936, it is estimated that approximately 45 percent of the gainfully occupied are engaged in agricultural pursuits, 10.9 percent in manufacturing, and 2.2 percent in construction. Employment in the extractive industries is very small, apparently not more than .3 percent.

Gross value of production, estimated by Alfredo O. Incierate, is published in the *Revista de la Federacion Rural*, July 1944, p. 36.

Argentina

Since the last population census was taken in 1914, there are no recent figures on the size and distribution of the gainfully occupied. It was assumed that the labor force constitutes approximately 36 percent of the total population as shown by official estimates. According to the Agricultural Census of 1937, employment in agriculture was very close to two million. From the Census of Manufacturing it is estimated that 756 thousand are in manufacturing, mining, and building construction. On this basis, of the employed population, 4,750 thousand, 1,995 thousand are in 'other' (services).

Production figures for agriculture and manufacturing are from the 1943 Annual Report of the Central Bank. Figures on manufacturing were adjusted by separating mining (320 million pesos in 1940) and adding 600 million pesos to building construction.

Brazil

Value of production figures are official estimates published by the Ministry of Foreign Affairs, 1940-41, and the Institute of Geography and Statistics (*Boletim Estatístico*). The only data not originating in official sources are the value of agricultural production for household consumption and that for building construction (Table D).

TABLE D
Brazil
Commodity Production, Total Value, 1940

	MILLIONS OF CRUZEIROS
Agricultural	17,532
Agriculture proper	7,413
Cotton	1,405
Coffee	1,345
Wheat	1,160
Rice	689
Sugar cane	654
Mandioca	529
Beans	423
Other (13 products)	1,208
Animal	5,119
Cattle (oxen, hogs, etc.)	2,554
Milk, eggs, poultry	1,937
Other	628
Other production not reported in official statistics (estimated)	5,000
Extractive	688
Mineral	238
Gold	112
Coal	72
Other	54
Vegetable	450
Carnauba wax	159
Rubber	89
Brazilian tea	43
Babacu	54
Oiticica oil	39
Other	66
Manufacturing	19,200
Industrialized animal production	4,666
Meats	2,490
Hog fats	505
Salted beef	292
Dried hides	286
Dairy products	507
Other	586

TABLE D (*Continued*)

Other manufacturing	12,840
Textiles	2,715
Textile and fur products	1,293
Food products	1,417
Beverages	932
Tobacco	378
Metal products	745
Shoes	852
Pharmaceutical products	575
Vehicles	597
Paper	378
Steel and steel products	340
Other products	2,612
Building construction	1,700

Cuba

All the figures are from Carlos M. Raggi Ageo, *Condiciones Economicas y Sociales de la Republica de Cuba* (Havana, 1944). Of the 4,232,000 inhabitants, 1,580,000 were in the labor force in 1942. The largest percentage of the latter, 48.3, were in manufacturing. The value of

	LABOR FORCE	
	Thousands	Percentage
Manufacturing (incl. rural workers in the sugar industry)	763.0	48.3
Agriculture proper	300.0	19.0
Transportation	62.0	3.9
Commerce	210.0	13.3
Government	245.0	15.5

commodity production was 707,937 thousand pesos; the largest component, 388,053 thousand pesos, was manufacturing.

	VALUE OF PRODUCTION (thousands of pesos)
Extractive industries	21,324
Forestry	5,827
Fishing	6,000
Mining	9,497
Agriculture	298,560
Sugar (part going to agricultural producers)	119,360
Tobacco (23% of finished products)	24,200
Other products	130,000
Cattle raising	25,000
Manufacturing	388,053
Sugar	232,800
Tobacco	41,250
Other	114,003

Mexico

According to the 1930 Population Census, of 5.2 million persons in the labor force, 3.6 million (70 percent) were employed in agriculture and related industries, and 0.7 million (14.4 percent) in manufacturing and mining. Value of production figures, except for 'other agricultural

products', were taken from the *Anuario Estadístico de los Estados Unidos Mexicanos*, 1940. The value of 'other agricultural products' was estimated on the basis of acreage not covered by the most important products listed in the official production data. The value of manufacturing production for 1940 was computed by raising the 1935 Census value, 988.9 million pesos, 40 percent, the change in the index of the value of manufacturing between 1935 and 1940 (Table E).

TABLE E
Mexico
Agricultural, Mineral, and Manufacturing Production,
Total Value, 1940

	MILLIONS OF PESOS
Agriculture	1,409.0
Most important products (1939)	733.0
Other products (estimated)	450.0
Forestry (1937)	47.1
Fishing (70.5 million kgs. at 27 cts. per kg.)	19.0
Cattle, hogs, sheep, and other	159.9
Mining	846.8
Metals	645.2
Coal	16.3
Petroleum	185.3
Manufacturing	1,384.0
Total	3,639.8

TABLE 44
Twenty-two American Countries
National Income

	YEAR	POPULATION (thousands)	NATIONAL INCOME ^a	PER CAPITA INCOME ^b
United States ^c	1940	131,669	77,574	589
Canada ^d	1940	11,381	5,404	475
Mexico	1940	19,474	3,144	161
Costa Rica	1939	607		
El Salvador	1940	1,788	111	62
Guatemala	1939	3,002		
Honduras	1941-42	1,108	77	69
Nicaragua	1940	994		
Panama	1942	567	79	139
Cuba	1942	4,232	651	154
Dominican Republic	1940	1,650	70	42
Haiti	1939	2,600		
Argentina	1940	13,321	7,936	596
Bolivia	1940	3,100	7,350	2,371
Brazil	1940	41,565	33,111	797
Ecuador	1942	3,000	1,500	500
Colombia	1940	9,100	1,098	121
Chile	1940	4,750	12,953	2,727

TABLE 44 (*Continued*)

Paraguay	1940	1,015	84	83
Peru	1940	6,028	2,043	339
Uruguay	1940	2,170	436	201
Venezuela	1936	3,364	1,097	326

^a In millions of each national currency.

^b In units of each national currency.

^c Estimate of the Department of Commerce, *Survey of Current Business*, April 1945, p. 15.

^d *Canada Yearbook*, 1943-44, p. 797. Adjusted for interest and dividends transferred abroad.

3 INTERNATIONAL COMPARISONS OF NATIONAL INCOME

Comparing levels of national income in real terms in two periods or between countries is one of the most difficult tasks an economist or statistician encounters, for it is impossible to avoid the welfare concepts which, explicitly or implicitly, always enter into the analysis.

Basically the measurement of real national income or its changes is equivalent to measuring 'per capita productivity'. Were it possible to determine that the average productivity — as measured by the commodities and services produced per employed person — of two countries is the same, it could be asserted that, irrespective of their money national income, their real per capita incomes would be equal and their aggregate real national incomes would be in direct relation to the size of their populations. However, because of environmental, social, and natural conditions, technical skill, and utilization of machinery in varying degrees, the economic productivity of two nations may be quite different. Moreover, the output of each country is made up of commodities that often differ in quality or lack a counterpart in other countries. England may enjoy a high productivity in the textile industry while the United States may be favored with respect to the costs of producing automobiles. The average productivity of England and the United States can at best probably be calculated only roughly.

Since the object of all economic activity is to provide consumers with commodities and services to satisfy their basic needs, an obvious way of measuring the 'productivity' of a system is to measure the degree to which the basic needs of the population are met. National income, although of necessity in terms of a common unit of value — the national currency — actually represents assortments of commodities produced and

services rendered during specific periods and hence are expressions of economic welfare. For this reason, national income figures have, at least for the individuals to whom a part of this income flows, a more or less definite meaning in real terms, i.e., in terms of actual commodities and services offered on the market. Such subjective judgments of the real equivalence of a given money income vary, nevertheless, with income brackets, tastes, habits, social status, etc., of individuals and, even for individuals similarly placed, with geographical areas within a country. Consequently there is no unique appraisal of the real meaning of a given money income, but rather there are as many as there are groups of individuals.

The real income of a country can be visualized also as a schedule showing each individual commodity and service item created, and the quantities produced during two periods or in two areas can be evaluated according to one set of prices. If all the items constituting the output in the two areas or periods are of the same nature and quality, even though the quantities produced may have varied, the money aggregates will express the changes in real income, provided the distribution of the purchasing power among households and individuals as well as their tastes and preferences have remained constant. Another implicit assumption — that prices reflect the economic value of each good in the schedule — introduces the first theoretical difficulty. As prices of different goods change in different proportions, the results will differ according to whether prices prevailing at the beginning or end of the period — or in one area or the other — are used.

The above conditions — equality in the distribution of purchasing power and constancy in the tastes and preferences of individuals — are ideal and never found in actual experience. Moreover, concepts such as preferences and tastes cannot be measured statistically. Even data on income distribution are scarce and seldom available for several successive periods. In addition, it is impracticable to measure in the form expressed above each and every one of the many items in the schedule.

These difficulties hamper even measurements for short periods and areas not far apart within a country. They increase out of all proportion when the problem is to compare incomes in two widely separated periods or in two totally different areas.

A North American is interested in knowing the national income of the various Latin American countries expressed in dollars — the only currency which for him has a definite meaning in terms of commodities and services. The basket of goods bought by North Americans is, nevertheless, different from that bought, for example, by Brazilians or Panamanians. Tastes and habits differ widely; natural conditions in the various countries are such that goods readily and cheaply available in the United States are rarities or delicacies in Latin America, and vice versa. Comforts such as central heating, absolute necessities in the North, are not even thought of in the South. Clothing, buildings, transportation, almost everything is subject to regional differentiation which prevents any sort of accurate inter-country comparison of national incomes or standards of living.

A. C. Pigou analyzes in detail the theoretical and practical difficulties of comparing changes in the size of the real dividend between two periods within one country and concludes that parallelism is unattainable.⁴⁵ A possible solution, based upon the hypothesis of similarity of production and rigidity in tastes and income distribution, is given by a formula in which the ratio of the aggregates of the money incomes in each period is multiplied by a factor representing a geometric average of the reciprocal of the price changes, weighted first by the quantities bought in the first period, then by those in the second period. Of course, in practice, only a sample of the prices of the various commodities and services in each broad group can be obtained, so that the weights to be assigned to these items must be representative of those of the group to which each item belongs.

Colin Clark adapts the above suggestion to solve the problem of comparing national incomes.⁴⁶ The assumptions on which Professor Pigou's solution rests are such, however, that approximate results can be obtained only when the economic structures of the countries whose incomes are being compared are very similar. It obviously does not apply as well to countries

⁴⁵ *Economics of Welfare* (Macmillan, London, 1933, 4th ed.)

⁴⁶ *The Conditions of Economic Progress*, Introduction and Ch. 1.

Clark's estimates of real income for undeveloped countries are only rough approximations. He writes: "We shall probably be able to get results within the range of 10-20 percent actuality if we estimate that the purchasing power of money in the less economically developed parts of the world for which records are lacking is given by a price index number in the neighborhood of 66 (U. S. A. = 100) . . ." (*ibid.*, p. 52).

where living conditions, the distribution of income, and consumers' tastes are utterly different and where the finding of a sufficiently large number of commodities representative of the production of each country and still comparable among themselves is practically impossible. As the majority of the Latin American countries are, in all the above respects as well as in climate and other natural conditions, far removed from Europe or the United States, the results, even if based upon a large sample of commodities and careful selection of prices, would quite likely be suspect. In addition, owing to the differences in habits and diets already pointed out, the evaluation of, say, an American budget at prices prevailing in Bolivia would probably yield an abnormally high cost in Bolivian pesos. Similarly, a Bolivian budget at prices prevailing in the United States would probably yield an abnormally high cost in American dollars. For this reason, the averaging of the cost of an American budget at foreign prices with that of a foreign budget at American prices, however made, will be completely arbitrary if living conditions differ radically. Such a solution can be accepted only if there is no better method. One difficulty is that the few cost of living and consumption studies for Latin American cities are in general too limited in scope, and in no case is it possible to place the families investigated within the general economic and social framework of the community as a whole so as to determine how representative the group is. For example, it seems impossible to say what type of family or what level of income in Ecuador can be considered under national conditions to be the equivalent of a given income level in Caracas, Buenos Aires, or New York.⁴⁷

A Computation of Purchasing Power Parities

Despite the shortcomings inherent in any method of comparing national incomes, an attempt has been made to compute the purchasing power of the currencies of the countries in the

⁴⁷ Adequacy of the diet could perhaps be used as a criterion. Customs and habits, nevertheless, play an important role, and in reality the diet is a function not only of the income level but also of education and habit. For instance, the studies of family income and expenditures undertaken in the United States (see *Miscellaneous Publication* 465, U. S. Department of Agriculture, p. 59) show that among non-farm communities 16 percent of the families in the \$1,500-\$1,999 and \$2,000-\$2,999 income groups had 'poor' diets. Of the families above the \$3,000 level, 10 percent also had 'poor' diets.

Western Hemisphere in terms of a given basket of goods. To this end, twelve important food items consumed by an adult in

TABLE 45
Six United States Cities, 1940
Average Consumption and Cost of Twelve Important Food Items

	UNIT	QUANTITIES CONSUMED	PRICE * (U. S. cents)	COST (U. S. \$)
Wheat bread	Kgs.	40.2	17.4	6.99
Wheat flour	Kgs.	14.9	9.0	1.34
Rice	Kgs.	2.2	17.4	0.38
Beef, fresh	Kgs.	24.3	52.2	12.68
Pork, fresh	Kgs.	6.9	68.6	4.73
Milk	Kgs.	152.1	13.0	19.77
Butter	Kgs.	11.9	81.7	9.72
Cheese	Kgs.	4.4	57.9	2.55
Eggs	No.	326.0	3.1	10.11
Potatoes	Kgs.	88.9	4.5	4.00
Sugar	Kgs.	31.6	11.3	3.57
Coffee	Kgs.	5.7	47.6	2.71
Aggregate				78.55

Based on average consumption per 'consumption unit' (adult male) per year, according to surveys by the U. S. Department of Labor (*Yearbook of Labour Statistics, 1941*; International Labour Office), p. 170.

* Retail prices in eight cities (*ibid.*, p. 159).

TABLE 46
Fifteen American Countries
Aggregate Cost of Buying Given Quantities of
Twelve Important Food Items, 1940
(units of national currencies)

United States	Dollars	78.55
Uruguay	Pesos	61.29 ^a
Cuba	Pesos	63.64
Canada	Dollars	71.05
Dominican Republic	Pesos	77.86
El Salvador	Colones	90.88 ^b
Paraguay	Guaranies	99.56 ^c
Colombia	Pesos	103.08
Argentina	Pesos	114.28 ^a
Mexico	Pesos	205.29
Peru	Soles	272.53
Venezuela	Bolivares	480.29
Brazil	Cruzeiros	713.15 ^d
Chile	Pesos	1,341.04
Bolivia	Bolivianos	3,201.28

Prices, whenever possible, are for not one city but several, so that they are representative of the country as a whole. In Peru, Uruguay, Cuba, Colombia, Chile, Bolivia, and Venezuela they are for the respective capital cities where prices are usually higher. As in Caracas, Venezuela especially, prices are relatively much higher than in other capital cities, the comparison with Venezuela should be disregarded.

^a Excludes pork and butter. The comparable American budget costs \$64.10.

^b Excludes wheat bread. The comparable American budget costs \$71.56.

^c Excludes wheat bread and pork. The comparable American budget costs \$66.70.

^d Excludes pork and cheese. The comparable American budget costs \$71.27.

the United States were selected and the quantities valued at the retail prices prevailing in each country (Tables 45 and 46). The only possible justification for the method lies in the fact that the products selected are standardized and figure in the average diets in all fifteen countries. If these products in any way measure or represent the relative prices of all other food products consumed — which is probably the case — the results will most likely constitute a definite improvement upon foreign exchange rates, the usual base.⁴⁸ The budget or 'basket' has been confined to food items since it was impossible to find adequate comparable quantity and price data for clothing items or shelter, the inclusion of which would also have been desirable. By relating the cost of the basket in United States dollars to that in other national currencies, an approximation to the various purchasing power parities is obtained. Table 47 compares the value of one unit of each foreign currency in dollars, calcu-

TABLE 47
'Purchasing Power Parities' and Exchange Rates
Seventeen American Currencies, 1940
(United States dollars per unit of foreign currency)

CURRENCY	PURCHASING POWER PARITY	EXCHANGE RATE
Argentina	Peso	\$0.56
Bolivia	Boliviano	0.02
Brazil	Cruzeiro	0.10
Canada	Dollar	1.11
Chile	Peso	0.06
Cuba	Peso	1.23
Colombia	Peso	0.76
Dominican Republic	Peso	0.92
El Salvador	Colon	0.79
Mexico	Peso	0.35
Paraguay	Guarani	0.67
Peru	Sol	0.29
Uruguay	Peso	1.04
Venezuela	Bolivar	0.16
Panama	Balboa	1.00
Honduras	Lempira	0.50
Ecuador	Sucre	0.06

⁴⁸ Exchange rates, in the absence of foreign exchange or foreign trade controls, tend to move with the ratio of the price indexes of the commodities entering the foreign trade of the respective countries. There may nevertheless be a wide gap between the price levels of the commodities entering foreign trade and those consumed in home markets, so that even in the absence of foreign exchange and foreign trade restrictions, the movements of exchange rates and those of the general 'price level' will not coincide. For these reasons, even crudely computed purchasing power parities are better than the exchange rate.

lated in this fashion, with the average exchange rates prevailing in the free markets during 1940.

Despite their crudeness, the 'purchasing power parities' show rather well the relative value of each currency in terms of commodities, except perhaps for Venezuela, where, as stated in the note to Table 46, the retail prices used, for Caracas, are well above the levels in other parts of the country.

B *Real Income of Latin America*

Before applying the 'purchasing power parities', it may be well to sound a warning regarding certain factors that affect their comparability, among them that due to internal differences in the purchasing power of money in each country.

As has been shown, in many of the countries the majority of the inhabitants live in rural areas and a good proportion of production never reaches the market; i.e., is not bought or sold. Still, for the purpose of computing national income, a monetary value — usually based on the prices paid for the portion of production that is marketed and for which there are prices — is attributed to it. The net contribution of agriculture is then estimated at theoretical values at the farm or point of production. This theoretical money income, the greater part of which is made up of food items produced and consumed on the farm, is not comparable with the money income of urban workers spent on similar consumption items whose cost is affected by transportation, profits of middlemen, and other charges entailed in bringing them from the farms to consumption centers. Thus, in estimating the national income originating in agriculture, a definite downward bias is introduced, as is evident for several countries for which figures are available. A good example is Venezuela where money income per person employed in agricultural pursuits did not seem to exceed 600 bolivars in 1936, while income per person employed in manufacturing and trade reached 2,000 and 3,000 bolivars respectively. Even within the same economic groups, variations in income are considerable, depending on the area. Average earnings of workers employed in trade in the State of Zulia in Venezuela were 5.67 bolivars a day, whereas in Nueva Esparta they did not exceed 1.21 bolivars. Similar ranges characterize office employees, not only in trade but also in manufacturing and service industries.

Real income does not show equivalent disparities, although price data do not give a true picture.

International comparisons of the national incomes of countries largely dependent upon agriculture are complicated, because in more industrialized countries the regional variations of per capita income are not nearly as pronounced. Furthermore, a balancing item is afforded in the latter type of country by the fact that the prices of manufactured products consumed in rural areas — in relatively larger quantities than in Latin America — are higher than in urban zones because of additional transportation charges.

Other reasons why attempts to compare national incomes should be viewed with extreme caution are the geographical differences affecting living conditions already mentioned. Rent paid or imputed, for instance, constitutes a higher proportion of total United States income than of those of most tropical countries where a majority of the natives live in improvised or in any case very inexpensive shelters. The absence of roofs on houses in southern Peru near the Atacama Desert does not mean — other things being equal — that the houses are poorer than those in the United States. As it never rains in the area roofs are superfluous and would be a nuisance in that they would keep the temperature in the houses unduly high. Clothing is lighter and many items entering the national income of the United States are not used in some South American countries. This means that conditions are simply different, not worse. All the above factors tend to give any comparison of Latin America-United States national income a bias unfavorable to Latin America, with perhaps the exception of Argentina, Chile, and Uruguay where living conditions approximate those of the United States more closely.

The relative smallness of the national incomes of Latin American countries is the most striking feature of Table 48. Although some of the figures may be questioned and subject to the margins of error already stressed, it is doubtful that on the whole the picture is excessively distorted. With a population of 124 million in 1940 Latin America had a national income only one-sixth that of the United States. Argentine national income is one-third that of all Latin America, followed by Brazil with \$3,311 million or one-fourth. Nearly 45 percent of the total population of Latin America live in these two countries.

TABLE 48

Twenty-two American Countries Total and Per Capita National Incomes, 1940

	TOTAL NATIONAL INCOME (national currency 000,000)	PURCHAS- ING POWER PARITY (\$)	NATIONAL INCOME (comparable \$000,000)	POPULAT- ION (000's)	PER CAPITA INCOME (comparable \$)	INCOME % DISTRI- BUTION
Western Hemisphere						
United States	77,574	1.00	96,830	267,049	362	100.0
Canada	5,404	1.11	77,574	131,669	589	80.1
Latin America						
Argentina	7,936	0.56	5,998	11,381	527	6.2
Uruguay	436	1.04	13,258	123,999	106	13.7
Chile	12,953	0.06	4,444	13,321	334	33.4
Cuba	488 ^a	1.23	453	2,170	209	3.4
Panama	79 ^b	1.00 ^c	777	4,750	164	5.9
Peru	2,043	0.29	600	4,200	143	4.6
Colombia	1,098	0.76	79	567	139	0.6
Venezuela	1,150 ^d	0.30 ^e	592	6,208	95	
Brazil	33,111	0.10	834	9,100	92	6.3
Mexico	3,144	0.35	345	3,780	91	2.6
Paraguay	84	0.67	3,311	41,565	80	25.0
El Salvador	111	0.79	1,100	19,474	56	8.3
Bolivia	7,350	0.02	56	1,015	55	0.4
Dominican Republic	70	0.92	87	1,788	49	0.7
Honduras	77 ^e	0.50 ^e	147	3,100	47	1.1
Ecuador	1,500 ^f	0.06 ^e	64	1,650	39	0.5
Guatemala, Nicaragua, Costa Rica, & Haiti	....	....	39	1,108	35	0.3
			90	3,000	30	0.7
			241 ^g	7,203	....	6.3

^a Estimated by applying to the 1942 figures an index of total merchandise sales; see *Cuba Económica y Financiera*, Jan. 1945, p. 27.

^b For 1942. It does not seem possible to estimate for 1940.

^c Converted into dollars by means of exchange rates. No retail prices available.

^d The 1940 figure was estimated by assuming no changes in production and increasing the 1936 estimate 5 percent, or the equivalent change in wholesale prices.

^e 1941-42. It does not seem possible to estimate for 1940.

^f The original estimate seems to be for 1942.

^g Rough estimate on the assumption that the per capita incomes (in comparable dollars) of Guatemala, Nicaragua, Costa Rica, and Haiti are similar to the average of those of Honduras, El Salvador, and the Dominican Republic.

Another possible way of obtaining an approximate idea of the welfare level in various countries is by indirect indexes such as automobiles, refrigerators, radios, and other consumer goods; the number of letters mailed or of telephones per inhabitant; the railroad mileage or even the degree of literacy. This procedure, though practical and relatively simple, sometimes gives different answers according to the type of index selected. Furthermore, there is no way of knowing what relative importance each index has in determining national welfare, so that weighting, if adopted, would be arbitrary. Still, and chiefly for its curiosity value, Table 49 gives per capita data for some of the

TABLE 49
Twenty-two American Countries
Six Indexes of Economic Welfare

	RR. MILEAGE	ROADS	AUTOS	TEL.	RADIOS	% OF ILLITERACY
	(Per thousand inhabitants)					
United States	3.24	22.78 ^a	261.13	147.74		4.3
Canada	4.92	48.71	130.52	127.04	126.50	3.7
Argentina	2.06	19.00	23.23	34.60	78.82	12
Uruguay	0.87	10.39	21.15	21.56 ^b	69.32	20
Chile	1.09	4.76	10.58	19.15	42.10	24
Cuba	1.42 ^c	0.52	11.07	16.20	47.30 ^d	60
Mexico	0.66	2.93	5.43 ^e	9.21	18.03	45
Brazil	0.51	3.10	4.18	7.00	12.03	70
Costa Rica	0.28	0.60	5.87	6.02	32.74	32
Venezuela	0.21	1.49	8.99	8.06	34.93	75
Paraguay	1.03	3.70	1.41	3.74	12.32	75
Panama	0.61 ^f	1.40 ^f	24.35 ^f	11.24	51.36	60
Colombia	0.22	1.58	3.89	4.64	18.24	39
Bolivia	0.45	3.28	1.85	0.85	12.90	80
Peru	0.38	2.67	3.96	5.66	11.28	70
Honduras	0.60	0.63	1.42	1.73 ^g	14.44	82
El Salvador	0.21	2.07	1.91	2.09 ^g	5.87	55
Dominican Republic	0.48	1.32	1.67	1.48 ^h	6.18 ^d	60
Nicaragua	0.30	1.59	0.93	1.55 ⁱ	4.11	70
Ecuador	0.27	1.10	1.30	2.53	2.27	75
Guatemala	0.21	1.15	1.30	1.16	6.70	75
Haiti	0.06	0.59	0.96	1.12 ⁱ	1.92 ^d	75

Original data on railroads, roads, automobiles, telephones, and radios — except for a few changes to correct obvious errors — are from *Overseas Air Service Pattern* (Civil Aeronautics Board, Washington, D. C., 1944), pp. 107-8.

Illiteracy percentages are from *Educacion Primaria* (Ministerio de Educacion Nacional, Republica de Colombia, Bogota, 1944). Figures for the United States and Canada are from the *Statistical Abstract, 1942*, and *The Canada Yearbook, 1942*, respectively. All figures except those for railroad mileage, which are for 1940, are for 1941.

^a Based on 1930 figures.

^e 1940.

^b 1939.

^f Including the Canal Zone.

^c L. V. Abad, *Problemas de los Transportes Cubanos* (Havana, 1944).

^g 1938.

^h 1936.

^d 1943.

ⁱ 1942.

indexes mentioned above for the twenty-two American countries. Listed by the approximate level of their economic welfare (based on simple visual observation of the indexes), the countries are in general in an order similar to that of Table 48.